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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/961,400	12/06/2010	Erez Galil	QCMLF.373A

CONFIRMATION NO. 9077

POA ACCEPTANCE LETTER



14870
KNOBBE, MARTENS, OLSON & BEAR, LLP
2040 Main Street
Fourteenth Floor
Irvine, CA 92614

Date Mailed: 07/30/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/24/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/961,400	12/06/2010	Erez Galil	74095-8094.US01

CONFIRMATION NO. 9077

97848
Perkins Coie LLP - Zoran Corp.
PO Box 1208
Seattle, WA 98111-1208

POWER OF ATTORNEY NOTICE



Date Mailed: 07/30/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/24/2014.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:



Practitioners associated with Customer Number:

14870

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used)

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number:

14870

OR


Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone			Email

Assignee Name and Address: Qualcomm Technologies, Inc.
5775 Morehouse Drive
San Diego, California 92121

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	7/21/14
Name	Victoria Chen	Telephone	858-658-4351
Title	Assistant Secretary, Qualcomm Technologies, Inc.		

This collection of information is required by 37 CFR 1.11, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to be (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	19679400
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	John Paik/Valerie Jones
Filer Authorized By:	John Paik
Attorney Docket Number:	74095-8094.US01
Receipt Date:	24-JUL-2014
Filing Date:	06-DEC-2010
Time Stamp:	19:38:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		QCMLF373A_373STATEMENT_POA.pdf	185738 223733dacbb047881b4dcd179479b9d771d55774	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Assignee showing of ownership per 37 CFR 3.73.	1	2
	Power of Attorney	3	3
Warnings:			
Information:			
Total Files Size (in bytes):		185738	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

STATEMENT UNDER 37 CFR § 3.73
ESTABLISHMENT OF ASSIGNEE

First Inventor	: Erez Galil
App. No.	: 12/961,400
Filed	: December 6, 2010
For	: DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
Examiner	: Kanjibhai B. Patel
Group Art Unit	: 2669

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This document is being filed with a copy of a Power of Attorney signed by the Assignee. This Statement sets forth the chain of title of the above-identified application.

Qualcomm Technologies, Inc., a Corporation, is the Assignee of the entire right, title, and interest of the above-referenced application by virtue of:

A chain of title, in reverse order, from the inventor(s) to the current Assignee as shown by the following recorded assignments:

1. Assignment from CSR TECHNOLOGY INC. to QUALCOMM TECHNOLOGIES, INC. recorded in the United States Patent and Trademark Office on June 11, 2014, at Reel 033134, and Frame 0007.
2. Assignment from ZORAN CORPORATION to CSR TECHNOLOGY INC., recorded in the United States Patent and Trademark Office on January 18, 2012, at Reel 027550, and Frame 0695.
3. Assignment from EREZ GALIL to ZORAN CORPORATION, recorded in the United States Patent and Trademark Office on December 6, 2010, at Reel 025458, and Frame 0351.

Appl. No. : 12/961,400
Filed : December 6, 2010

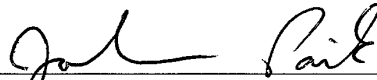
Docket No. QCMLF.373A
Customer No. 14870

The undersigned is an agent of Customer No. 14870 and is authorized to act on behalf of the Assignee. Please recognize or change the correspondence address for the above-identified application to **Customer No. 14870**.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 7/27/2014

By: 

John L. Paik
Registration No. 54,355
Attorney of Record
Customer No. 14870
(858) 707-4000

18510924/jlb
072414



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/961,400	05/21/2013	8447132	74095-8094.US01	9077

97848 7590 05/01/2013
Perkins Coie LLP - Zoran Corp.
PO Box 1208
Seattle, WA 98111-1208

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 254 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Erez Galil, Mountain View, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

9784E 7593 02/28/2013
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Depositor's name
Signature
Date

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/061,400	12/06/2010	Erez Guld	74095-8094.US01	9077

TITLE OF INVENTION: DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

APPL. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$0	\$0	\$1770	05/28/2013

EXAMINER	ART UNIT	CLASS/SUBCLASS
PATEL, KANJIBHAI B	2660	382-274000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☒ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47, Rev. 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. PERKINS COIE LLP

2. _____

3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

CSR TECHNOLOGY, INC.

(B) RESIDENCE (CITY AND STATE OR COUNTRY)

Sunnyvale, California USA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 80-2207 (enclose an extra copy of this form)

5. Change in Entity Status (from status indicated above)

- ☒ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(3).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Jordan M. Becker

Date

4/15/13

Typed or printed name

Registration No.

39,602

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is in file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application for:

Erez GALIL

Serial No.: 12/961,400

Filing Date: December 6, 2010

For: **DYNAMIC RANGE CORRECTION
BASED ON IMAGE CONTENT**

Examiner: Kanjibhai B. Patel

Group Art Unit: 2669

Confirmation No. 9077

Customer No. 97848

Commissioner for Patents -- MAIL STOP ISSUE FEE
P.O. Box 1450
Alexandria, Virginia 22313-1450

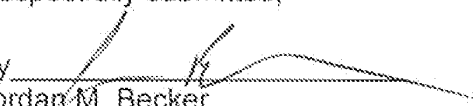
COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Dear Sir/Madam:

In the Notice of Allowability mailed February 28, 2013, the Examiner allowed Claims 1-4 and 6-34. Although Applicant agrees with the Examiner's conclusion that these claims are allowable, Applicant notes that the claims may be allowable for reasons other than those identified by the Examiner and does not concede that the Examiner's characterizations of the terms of the claims and the prior art are correct.

Dated: 4/15/13

Respectfully submitted,

By 
Jordan M. Becker

Registration No.: 39,602

PERKINS COIE LLP
P.O. Box 1208
Seattle, Washington 98111-1208
(650) 838-4300
(650) 838-4350 (Fax)

Attorney for Applicant

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

"FEE ADDRESS" INDICATION FORMAddress to:
Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450Fax to:
671-273-6500

- OR -

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. **When to check the first box below:** If you have a Customer Number to represent the fee address. **When to check the second box below:** If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

☒ Customer Number: 97848

OR

☐ The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
	12/961,400

Completed by (check one):

☐ Applicant/inventor☒ Attorney or Agent of record 39,602
(Reg. No.)☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/95)☐ Assignee recorded at Reel _____ Frame _____

Signature

Jordan M. Becker

Typed or printed name

(650) 838-4300

Requester's telephone number

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of 1 forms are submitted.

Electronic Patent Application Fee Transmittal				
Application Number:		12961400		
Filing Date:		06-Dec-2010		
Title of Invention:		DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT		
First Named Inventor/Applicant Name:		Erez Galil		
Filer:		Jordan Michael Becker/Diane Hawley		
Attorney Docket Number:		74095-8094.US01		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	1780	1780
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				1780

Electronic Acknowledgement Receipt	
EFS ID:	15566084
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	Jordan Michael Becker/Diane Hawley
Filer Authorized By:	Jordan Michael Becker
Attorney Docket Number:	74095-8094.US01
Receipt Date:	19-APR-2013
Filing Date:	06-DEC-2010
Time Stamp:	15:18:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1780
RAM confirmation Number	1927
Deposit Account	502207
Authorized User	BECKER, JORDAN
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IF.pdf	653915 a9056ae9e2b69976effa9633e6956d1e28d0538b	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Issue Fee Payment (PTO-85B)	1	1		
	Miscellaneous Incoming Letter	2	3		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30392 79673a01cc0dfbcdda933f2fd1051151bda7fdb	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			684307		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

97848 7590 02/28/2013
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

EXAMINER

PATEL, KANJIBHAI B

ART UNIT PAPER NUMBER

2669

DATE MAILED: 02/28/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/961,400	12/06/2010	Erez Galil	74095-8094.US01	9077

TITLE OF INVENTION: DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$0	\$0	\$1770	05/28/2013

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

97848 7590 02/28/2013
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/961,400	12/06/2010	Erez Galil	74095-8094.US01	9077

TITLE OF INVENTION: DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1770	\$0	\$0	\$1770	05/28/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
PATEL, KANJIBHAI B	2669	382-274000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/961,400	12/06/2010	Erez Galil	74095-8094.US01	9077
97848	7590	02/28/2013	EXAMINER	
Perkins Coie LLP PO Box 1208 Seattle, WA 98111-1208			PATEL, KANJIBHAI B	
			ART UNIT	PAPER NUMBER

2669

DATE MAILED: 02/28/2013

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 254 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 254 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	12/961,400	GALIL, EREZ	
	Examiner	Art Unit	
	KANJIBHAI PATEL	2669	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/17/2012.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-4 and 6-34. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. <input type="checkbox"/> Notice of References Cited (PTO-892)	5. <input type="checkbox"/> Examiner's Amendment/Comment
2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____	6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance
3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. <input type="checkbox"/> Other ____.
4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date ____.	

Response to Amendment

1. Applicant's amendment filed 01/17/2013 has been entered and made of record. By this amendment, claim 5 is cancelled, claims 1-4 and 6-34 are pending in the application. Claims 16-33 were allowed in the previous Office action mailed 10/17/2012.

In response to applicant's amendment to independent claims 1 and 34 by incorporating the allowable subject matter as indicated in paragraph 4 of the last Office action mailed 10/17/2012, the rejection of claims 1-4, 7, 9, 11-12 and 34 under 35 USC 102(e) has been withdrawn.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

Claims 1-4, and 6-34 are allowed.

In response to applicant's amendment to independent claims 1 and 34 by incorporating the allowable subject matter as indicated in paragraph 4 of the last Office action mailed 10/17/2012, the rejection of claims 1-4, 7, 9, 11-12 and 34 under 35 USC 102(e) has been withdrawn. Therefore, all the pending claims 1-4 and 6-34 are allowed now.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (571) 272-7454. The examiner can normally be reached on Monday to Thursday from 8 a.m. to 6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan Park can be reached on (571) 272-7409. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kanji Patel/

Primary Examiner, Art Unit 2669

EAST Search History**EAST Search History (Prior Art)**


Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	591	detect\$4 near2 (face or facial) near2 (intensity or brightness or luminance or lightness)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/19 08:10
L2	170	1 same intensity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/19 08:10
L3	16	2 same (correct\$3 or adjust\$4 or modif\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/19 08:12
L4	9	3 and digital\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/02/19 08:14

2/ 19/ 2013 8:43:25 AM

EAST Search History**EAST Search History (Interference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(amount near correct\$3 and digital adj image and first adj portion and predetermined).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2013/02/19 15:11

2/ 19/ 2013 3:25:46 PM

Search Notes 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
	Examiner KANJIBHAI PATEL	Art Unit 2624

CPC- SEARCHED		
Symbol	Date	Examiner


CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
382	118, 243, 254, 264, 266, 274, 275, 305, 312	09/21/12	KBP
348	207.99, 241, 345	09/21/12	KBP
358	1.9, 3.27, 518, 520	09/21/12	KBP
345	617	09/21/12	KBP

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	09/20/12	KBP
INTERFERENCE SEARCH HISTORY	09/20/12	KBP
INVENTOR SEARCH IN PALM	09/20/12	KBP
EAST (USPAT)	09/21/12	KBP
NPL-IEEE XPLORE SEARCH	09/21/12	KBP
EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	02/19/13	KBP
INTERFERENCE SEARCH HISTORY	02/19/13	KBP

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
358	1.9	02/20/13	KBP


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<i>Index of Claims</i> 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
	Examiner KANJIBHAI PATEL	Art Unit 2624

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIM		DATE									
Final	Original	09/22/2012									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	O									
	6	O									
	7	✓									
	8	O									
	9	✓									
	10	O									
	11	✓									
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	29	=									
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	31	=									
	32	=									
	33	=									
	34	✓									


Issue Classification 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
	Examiner KANJIBHAI PATEL	Art Unit 2669

CPC		
Symbol	Type	Version


CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION													
CLASS			SUBCLASS			CLAIMED					NON-CLAIMED								
382			274			G	0	6	K	9 / 40 (2006.0)									
CROSS REFERENCE(S)						H	0	4	N	1 / 60 (2006.0)									
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																		
358	1.9																		

NONE		Total Claims Allowed:	
		33	
(Assistant Examiner)	(Date)		
/KANJIBHAI PATEL/ Primary Examiner. Art Unit 2669	02/20/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ	
	Examiner KANJIBHAI PATEL	Art Unit 2669	

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	33	
/KANJIBHAI PATEL/ Primary Examiner. Art Unit 2669	02/20/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
	Examiner KANJIBHAI PATEL	Art Unit 2669

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	16	17	32	33										
2	2	17	18	33	34										
3	3	18	19												
4	4	19	20												
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5	6	21	22												
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11	12	27	28												
12	13	28	29												
13	14	29	30												
14	15	30	31												
15	16	31	32												

NONE		Total Claims Allowed:	
		33	
(Assistant Examiner)	(Date)		
/KANJIBHAI PATEL/ Primary Examiner. Art Unit 2669	02/20/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Attorney Docket No.: 74095-8094.US01

Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application for:

Erez GALIL

Serial No.: 12/961,400

Filing Date: December 6, 2010

For: DYNAMIC RANGE CORRECTION
BASED ON IMAGE CONTENT

Examiner: Kanjibhai B. Patel

Group Art Unit: 2669

Confirmation No. 9077

Customer No. 97848

MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

AMENDMENT AND RESPONSE TO OFFICE ACTION

Dear Sir:

In response to the Office Action mailed on October 17, 2012, please enter the following amendment and consider the remarks below:

In the Claims begin on page 2 of this paper.

Remarks begin on page 11 of this paper.

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the present application:

1. (Currently amended) A method comprising:

determining whether a first portion of digital image data represents a physical object of a predetermined type;

determining a correction to apply to the first portion of the digital image data, based on a determination that the first portion of the digital image data represents a physical object of the predetermined type, wherein the determined correction is matched to the predetermined type; and

applying the determined correction to the first portion of the digital image data to enhance a visual characteristic of the first portion of the digital image data, by applying a first amount of the correction to the first portion of the digital image data; and

applying a second amount of the correction to a second portion of the digital image data, wherein the first amount differs from the second amount, and wherein the first amount corresponds to a physical object of the predetermined type.

2. (Original) A method as recited in claim 1, wherein the correction comprises a dynamic range correction.

3. (Original) A method as recited in claim 1, wherein determining the correction comprises determining an amount of a parameter to apply to the first portion of the digital image data.

4. (Original) A method as recited in claim 3, wherein the parameter is a gain.

5. (Canceled)

6. (Original) A method as recited in claim 1, wherein applying the determined correction to the first portion of the digital image data comprises applying a first amount of a parameter to the first portion to enhance the visual characteristic, wherein the first amount of the parameter is different from a second amount of the parameter applied to a second portion of the digital image data, resulting in a first

portion of a digital image that corresponds to the first portion of digital image data being brighter than if the second amount of the parameter were applied to both the first portion and the second portion of the digital image data.

7. (Original) A method as recited in claim 1, wherein the predetermined type of physical object represents facial attributes.

8. (Currently amended) A method as recited in claim 1, further comprising:
determining that ~~[[a]]~~the second portion of the digital image data does not represent a physical object of the predetermined type; and

determining a different amount of gain to apply to the second portion than ~~that an~~
amount of gain determined for the first portion.

9. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining the amount of gain to apply to the first portion of the digital image data so as to maintain local contrast of the first portion of the digital image data.

10. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein the first portion of the digital image data includes a plurality of pixels, and wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first intermediate value based on a measure of image strength of a first pixel within the first portion of the digital image data;

determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel in the digital image data; and

using the first intermediate value and the second intermediate value to determine the amount of gain to apply to the first portion of the digital image data.

11. (Original) A method as recited in claim 10, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

12. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting a value from a gain data structure according to whether the first portion of the digital image data represents a physical object of the predetermined type.

13. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first gain based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined amount of gain comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

14. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

modifying a gain map based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined amount of gain to apply to the first portion of the digital image data comprises obtaining the amount of gain to apply to the first portion of the digital image data from the gain map.

15. (Currently amended) A method as recited in claim ~~[[1]]~~8, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the first portion of the digital image data represents a physical object of the predetermined type.

16. (Original) A method comprising:

making a determination, in a digital image processing device, that a first group of adjacent pixels in a digital image represents a face;

determining, in the digital image processing device, a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a face, wherein said determining includes determining a different amount of gain for the first group of pixels than that determined for a second group of pixels which do not represent a face, wherein said determining further includes determining the amount of gain for the first group of adjacent pixels so as to maintain local contrast of the first group of adjacent pixels, and wherein said determining further includes

determining a first intermediate value based on a measure of image strength of a first pixel of the first group of adjacent pixels;

determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel; and

using the first intermediate value and the second intermediate value to determine the type or amount of gain;

applying the determined type or amount of dynamic range correction to the at least one pixel in the first group of adjacent pixels;

determining that a second group of pixels in the digital image does not represent a face; and

determining a different type or amount of dynamic range correction to apply to the second group of pixels than that determined for the first group.

17. (Original) A method as recited in claim 16, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

18. (Original) A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

selecting a value from a gain data structure according to whether the at least one pixel is part of a portion of image data that represents a physical object of the predetermined type.

19. (Original) A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

determining a first gain based on the determination that the at least one pixel represents a physical object of the predetermined type; and

wherein applying the determined type or amount of dynamic range correction comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

20. (Original) A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

modifying a gain map based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined type or amount of dynamic range correction comprises obtaining the amount of gain from the gain map.

21. (Original) A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the at least one pixel is part of a portion of image data that represents a physical object of the predetermined type.

22. (Original) An image processing unit comprising:
an object detection unit to receive an intensity value for each of a plurality of pixels in a set of digital image data and to determine that a first portion of the set of digital image data represents a physical object of a predetermined type; and
a correction unit to determine a type or amount of correction to apply to the first portion of the set of digital image data, based on an output of the object detection unit, and to apply the determined type or amount of correction to the first portion of the set of digital image data, and to apply a different type or amount of correction to a second portion of the set of digital image data which does not represent a physical object of the predetermined type.
23. (Original) An image processing unit as recited in claim 22, wherein the correction is a dynamic range correction.
24. (Original) An image processing unit as recited in claim 23, wherein the object detection unit is configured to detect faces.
25. (Original) An image processing unit as recited in claim 22, wherein the correction unit further is to:
determine that a second portion of the set of digital image data does not represent a physical object of the predetermined type; and
determine a different type or amount of correction to apply to the second portion than that determined for the first portion.
26. (Original) An image processing unit as recited in claim 22, wherein the correction unit comprises:
a filter unit which receives the intensity values of the plurality of pixels and which includes a plurality of cascaded filter stages, wherein at least one filter stage of the plurality of cascaded filter stages operates based on a larger pixel neighborhood than a preceding filter stage of the plurality of cascaded filter stages, and wherein the image processing unit determines a number of stages of the filter unit that are active based on the set of digital image data;

wherein the correction unit corrects intensity values of the plurality of pixels based on outputs of the filter unit.

27. (Currently amended) An image processing unit as recited in claim 22, wherein the correction unit determines ~~the~~an amount of gain to apply to the first portion of the digital image data by determining the amount of gain so as to maintain local contrast of the first portion of the digital image data.

28. (Currently amended) An image processing unit as recited in claim ~~22~~27, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting a value from a gain data structure according to whether the first portion of the digital image data represents a physical object of the predetermined type.

29. (Currently amended) An image processing unit as recited in claim ~~22~~27, wherein the first portion of the digital image data includes a plurality of pixels, and wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first intermediate value based on a measure of image strength of a first pixel within the first portion of the digital image data;

determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel in the digital image data; and

using the first intermediate value and the second intermediate value to determine the amount of gain.

30. (Original) An image processing unit as recited in claim 29, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

31. (Currently amended) An image processing unit as recited in claim ~~22~~27, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

modifying a gain data structure based on the determination that the first portion

of the digital image data represents a physical object of the predetermined type; and
wherein applying the determined amount of gain comprises obtaining the amount of gain from the gain data structure.

32. (Currently amended) An image processing unit as recited in claim 2227, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first gain based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and
wherein applying the determined amount of gain comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

33. (Currently amended) An image processing unit as recited in claim 2227, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the first portion of the digital image data represents a physical object of the predetermined type.

34. (Currently amended) An apparatus comprising:
means for making a determination that a first group of adjacent pixels in a digital image represents a physical object of a predetermined type;
means for determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a physical object of the predetermined type;
and
means for applying the determined type or amount of dynamic range correction to the at least one pixel in the first group of adjacent pixels, by applying a first amount of the correction to the first portion of the digital image data; and
means for applying a second amount of the correction to a second portion of the

digital image data, wherein the first amount differs from the second amount, and
wherein the first amount corresponds to a physical object of the predetermined type.

REMARKS

Reconsideration of the present application is respectfully requested.

Summary of Office Action

Claims 16-33 stand allowed.

Claims 5-6, 8, 10 and 13-15 stand objected to but have been deemed to be allowable if rewritten in independent form.

Claims 1-4, 7, 9, 11-12 and 34 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 7,650,045 of Yano ("Yano").

Summary of Amendments

Claim 5 has been canceled. Claims 1, 8-10, 12-15, 27-29 and 31-34 have been amended. No claims have been added. No new matter has been added.

Discussion of Rejections

Applicant thanks the Examiner for allowing claims 16-33 and for indicating the allowability of the subject matter recited in dependent claims 5-6, 8, 10 and 13-15. Independent claims 1 and 34 have been amended essentially to incorporate the limitations of dependent claim 5 (now canceled). The remaining claims have been amended to correct minor informalities and/or to place them in a form that Applicant prefers.

In view of the above amendments, therefore, Applicant respectfully submits that all claims are in condition for allowance.

Reservation of Rights

For the sake of conciseness and clarity, Applicant may not have addressed every assertion or rejection made in the Office Action, particularly where Applicant has presented amendments or arguments that Applicant believes render such assertions/rejections moot. Therefore, Applicant's silence regarding any such assertions or rejections does not constitute an admission or acquiescence regarding such assertions/rejections or a waiver of any argument relating to such assertions/rejections. Applicant reserves the right to challenge at a later time any

rejection or any factual or legal assertion made by the Office in relation to the present application. Applicant does not admit that any of the references cited in the Office Action are prior art. Applicant reserves the right to swear behind any cited reference at a later date, to the extent permitted by law.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

CONCLUSION

For the foregoing reasons, the present application is believed to be in condition for allowance, and such action is earnestly requested.

If there are any additional charges, please charge Deposit Account No. 50-2207, under Order No. 74095-8094.US01.

Respectfully submitted,

Dated: 1/17/13


Jordan M. Becker
Reg. No. 39,602

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Electronic Acknowledgement Receipt	
EFS ID:	14724846
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	Jordan Michael Becker/Crystal Fong
Filer Authorized By:	Jordan Michael Becker
Attorney Docket Number:	74095-8094.US01
Receipt Date:	17-JAN-2013
Filing Date:	06-DEC-2010
Time Stamp:	13:29:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2013_01_17_10_25_16.pdf	582636 162bd8da18f18c827eddfcac5b3e0d3aef86395a	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	10
	Applicant Arguments/Remarks Made in an Amendment	11	13
Warnings:			
Information:			
Total Files Size (in bytes):		582636	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 12/961,400		Filing Date 12/06/2010		<input type="checkbox"/> To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY <input type="checkbox"/> OR		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A				
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =			X \$ =				
<input type="checkbox"/> APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
<input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL				
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT	01/17/2013	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 33	Minus	** 34	= 0	X \$ =		OR	X \$62=	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X \$ =		OR	X \$250=	0
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
<p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p>										

Legal Instrument Examiner:
/DELEACHES YOUNG/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/961,400	12/06/2010	Erez Galil	74095-8094.US01	9077
97848	7590	10/17/2012	EXAMINER	
Perkins Coie LLP PO Box 1208 Seattle, WA 98111-1208			PATEL, KANJIBHAI B	
			ART UNIT	PAPER NUMBER
			2669	
			NOTIFICATION DATE	DELIVERY MODE
			10/17/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentprocurement@perkinscoie.com

Office Action Summary	Application No.	Applicant(s)	
	12/961,400	GALIL, EREZ	
	Examiner	Art Unit	
	KANJIBHAI PATEL	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 06 December 2010.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☒ Claim(s) 1-34 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☒ Claim(s) 16-33 is/are allowed.

7) ☒ Claim(s) 1-4, 7, 9, 11, 12 and 34 is/are rejected.

8) ☒ Claim(s) 5, 6, 8, 10 and 13-15 is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 04 January 2011 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. ____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>12/06/10, 03/15/11</u> .	6) <input type="checkbox"/> Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. Information Disclosure Statements submitted on 12/06/2010 and 03/15/2011 have been considered by the examiner.

Drawings

2. Drawings filed on 12/06/2010 and replacement drawings filed 01/04/2011 have been approved by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 7, 9, 11-12 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Yano (US 7,650,045 B2--IDS).

For claim 1, Yano discloses a method (Figures 1-5) comprising:

determining whether a first portion of digital image data (column 5, lines 12-16) represents a physical object of a predetermined type (section 7, in Figure 1; step 106 in Figure 2; Figures 3A-3C; Figures 4-5; column 8, lines 13-41; face of a person is a physical object);

determining a correction to apply (column 8 line 48 to column 9 line 25) to the first portion of the digital image data, based on a determination that the first portion of the digital image data represents a physical object of the predetermined type, wherein the determined correction is matched to the predetermined type; and

applying the determined correction to the first portion of the digital image data to enhance a visual characteristic (column 9, lines 30-41) of the first portion of the digital image data.

For claim 2, Yano discloses a method as recited in claim 1, wherein the correction comprises a dynamic range correction (sections 3-4 in Figure 1; column 10, lines 5-19).

For claim 3, Yano discloses a method as recited in claim 1, wherein determining the correction comprises determining an amount of a parameter to apply to the first portion of the digital image data.

For claim 4, Yano discloses a method as recited in claim 3, wherein the parameter is a gain (section 3 in Figure 1).

For claim 7, Yano discloses a method as recited in claim 1, wherein the predetermined type of physical object represents facial attributes (column 8, lines 9-41).

For claim 9, Yano discloses a method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining the amount of gain so as to maintain local contrast of the first portion of the digital image data (column 8, lines 3-41; sections 6-7 of Figure 1).

For claim 11, Yano discloses a method as recited in claim 10, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function (column 8, 12-30).

For claim 12, Yano discloses a method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting a value from a gain data structure according to whether the first portion of the digital image data represents a physical object of the predetermined type (column 8, lines 12-41; section 6 in Figure 1).

For claim 34, Yano discloses an apparatus (Figure 1) comprising:

means for making a determination that a first group of adjacent pixels in a digital image (column 1, lines 12-16) represents a physical object of a predetermined type (section 7 in Figure 1; step 06 in Figure 2; Figures 3A-3C; column 7 line 52 to column 8 line 41);

means for determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a physical object of the predetermined type (column 8 line 48 to column 9 line 25); and

means for applying the determined type or amount of dynamic range correction (column 10, lines 5-13) to the at least one pixel in the first group of adjacent pixels.

Allowable Subject Matter

4. The following is a statement of reasons for the indication of allowable subject matter:

Claims 5-6, 8, 10, and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 16-33 are allowed.

The prior art on record fails to teach or fairly suggest, singly or in combination the limitations of “determining, in the digital image processing device, a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a face, wherein said determining includes determining a different amount of gain for the first group of pixels than that determined for a second group of pixels which do not represent a face, wherein said determining further includes determining the amount of gain for the first group of adjacent pixels so as to maintain local contrast of the first group of adjacent pixels” as recited in claim 16.

Also the prior art on record fails to teach or fairly suggest, singly or in combination, the features of “a correction unit to determine a type or amount of correction to apply to the first portion of the set of digital image data, based on an output of the object detection unit, and to apply the determined type or amount of correction to the first portion of the set of digital image data, and to apply a different type or amount of correction to a second portion of the set of digital image data which does not represent a physical object of the predetermined type” as recited in claim 22.

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhang et al. (US 8,081,239 B2) disclose an image processing apparatus and image processing method.

Wong et al. (US 7,382,928 B2) disclose a digital image processing system and method for processing digital images.

Miyahara et al. (US 8,115,836 B2) disclose an image reproducing apparatus.

Steinberg (US 7,269,292 B2) discloses a digital image adjustable compression and resolution using face detection information.

Ishii (US 8,259,214 B2) discloses an image pickup apparatus and auto-focus detection method.

Tezuka (US 8,175,343 B2) discloses an imaging device, image processing device, control method, and program.

Endo et al. (US 7,948,524 B2) disclose an image processor and face detector using the same.

Marchesotti (US Pub. No: 2009/0290807 A1) discloses a method for automatic enhancement of images containing snow.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (571) 272-7454. The examiner can normally be reached on Monday to Thursday from 8 a.m. to 6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chan Park can be reached on (571) 272-7409. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

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/ Kanji Patel/

Primary Examiner, Art Unit 2624

Notice of References Cited	Application/Control No. 12/961,400	Applicant(s)/Patent Under Reexamination GALIL, EREZ	
	Examiner KANJIBHAI PATEL	Art Unit 2624	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
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	N					
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*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant			<input type="checkbox"/> CPA			<input type="checkbox"/> T.D.			<input type="checkbox"/> R.1.47		
CLAIM		DATE									
Final	Original	09/22/2012									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	O									
	6	O									
	7	✓									
	8	O									
	9	✓									
	10	O									
	11	✓									
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Search Notes 	Application/Control No. 12961400	Applicant(s)/Patent Under Reexamination GALIL, EREZ
	Examiner KANJIBHAI PATEL	Art Unit 2624

SEARCHED			
Class	Subclass	Date	Examiner
382	118, 243, 254, 264, 266, 274, 305, 312	09/21/12	KBP
348	207.99, 241, 345	09/21/12	KBP
358	1.9, 3.27, 518, 520	09/21/12	KBP
345	617	09/21/12	KBP

SEARCH NOTES		
Search Notes	Date	Examiner
EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB)	09/20/12	KBP
INTERFERENCE SEARCH HISTORY	09/20/12	KBP
INVENTOR SEARCH IN PALM	09/20/12	KBP
EAST (USPAT)	09/21/12	KBP
NPL-IEEE XPLORE SEARCH	09/21/12	KBP

INTERFERENCE SEARCH			
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EAST Search History**EAST Search History (Interference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	7	(physical adj object and correct\$3 and predetermined and portion).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/09/20 10:39
L2	5	(physical adj object and correct\$3 and predetermined and portion and first).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/09/20 10:40
L3	1	(physical adj object and correct\$3 and predetermined and portion and first and digital adjimage).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2012/09/20 10:41

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10 Results returned

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CONFIRMATION NO. 9077

SERIAL NUMBER 12/961,400	FILING or 371(c) DATE 12/06/2010 RULE	CLASS 382	GROUP ART UNIT 2624	ATTORNEY DOCKET NO. 74095-8094.US01		
APPLICANTS Erez Galil, Mountain View, CA; ** CONTINUING DATA ***** YES /KBP/ This appln claims benefit of 61/285,063 12/09/2009 ** FOREIGN APPLICATIONS ***** NONE /KBP/ ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 12/17/2010						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and /KANJIBHAI B PATEL/ Acknowledged Examiner's Signature		<input type="checkbox"/> Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 13	TOTAL CLAIMS 34	INDEPENDENT CLAIMS 4
ADDRESS Perkins Coie LLP PO Box 1208 Seattle, WA 98111-1208 UNITED STATES						
TITLE DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT						
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EAST Search History**EAST Search History (Prior Art)**

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L6	2293793	"2" and correct\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 10:50
L7	68555	"3" and (type or amount) near correct\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 10:51
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L9	43	8 and gain	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 10:53
L10	15	9 and (intensity or brightness)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 10:54
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L14	4	12 and predetermined near type	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 11:19

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			Application Number	Not Yet Assigned 12/961,400	
			Filing Date	Concurrently Herewith 12/06/2010	
			First Named Inventor	Erez Galil	
			Art Unit	N/A 2624	
			Examiner Name	Not Yet Assigned Kanji Patel	
Sheet	1	of	3	Attorney Docket Number	74095-8094.US01

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Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/K.P./ ↑	AA	US-4,466,018	08-14-1984	Soneda et al.	
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
/K.P./	BA	JP-2006018739 (English Abstract)	01-19-2006	Canon Inc.		
/K.P./	BB	JP-2007325145 (English Abstract)	12-13-2007	Fujifilm Corp		

Examiner Signature	/Kanji Patel/	Date Considered	09/21/2012
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. * CITE NO.: Those application(s) which are marked with an single asterisk (*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(ii)) because that application was filed after June 30, 2003 or is available in the IFW. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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				First Named Inventor	Erez Galil
				Art Unit	N/A 2624
				Examiner Name	Not Yet Assigned Kanji Patel
Sheet	2	of	3	Attorney Docket Number	74095-8094.US01

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Examiner Signature	/Kanji Patel/	Date Considered	10/10/2012
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. * CITE NO.: Those application(s) which are marked with an single asterisk (*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(iii)) because that application was filed after June 30, 2003 or is available in the IFW. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449/PTO			Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Application Number	Not Yet Assigned 12/961,400	
			Filing Date	Concurrently Herewith 12/06/2010	
			First Named Inventor	Erez Gall	
			Art Unit	N/A 2624	
			Examiner Name	Not Yet Assigned Kanji Patel	
Sheet	3	of	3	Attorney Docket Number	74095-8094.US01

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/K.P./	CA	Boult, "Correcting Chromatic Aberrations Using Image Warping," <i>Center for Research in Intelligent Systems, Columbia University, Department of Computer Science</i> , 1992, 15 pages.	
↑	CB	Boult, "Local Image Reconstruction and Sub-Pixel Restoration Algorithms, <i>Graphical Models and Image Processing</i> , Vol. 55(1), January 1993, pp. 1-12.	
	CC	Choudhury, et al., "The Trilateral Filter for High Contrast Images and Meshes," <i>Eurographics Symposium on Rendering</i> , 2003, pp. 1-11.	
	CD	Duran, et al., "Fast Bilateral Filtering for the Display of High-Dynamic Range Images," <i>ACM Transactions on Graphics, Special Issue on Proc. of ACM Sig-Graph</i> , 2002, San Antonio, Texas, Vol. 21(3), pp. 257-266.	
	CE	Fattal, et al., "Gradient Domain High Dynamic Range Compression," <i>ACM Transactions on Graphics, Special Issue on Proc. of ACM Sign-Graph</i> , 2002, San Antonio, Texas Vol. 21(3), pp. 249-256.	
	CF	Gilboa, et al., "Complex Diffusion Processes for Image Filtering," <i>Proc. Conf. Scale-Space</i> , 2001, pp. 299-307.	
	CG	Perona, et al., "Scale-Space and Edge Detection Using Anisotropic Diffusion," <i>University of California Berkeley</i> , December 20, 1988, pages 1-30.	
	CH	Tomasi, et al., "Bilateral Filtering of Gray and Color Images," <i>Proc. IEEE Intl. Conference on Computer Vision</i> , 1998, pp. 839-846.	
	CI	Wong, "Image Enhancement by Edge-Preserving Filtering," <i>First IEEE International Conference on Imaging Processing</i> , Austin, Texas, November 13-16, 1994, 6 pages.	
	CJ	Yamashita, et al., "Contrast-Gain-Based Visual Tone Mapping for Digital Photo Prints," <i>Journal of Imaging Science and Technology</i> , Vol. 50(5), pp. 458-468 (2006).	
	CK	Co-pending U.S. Patent Application Number 11/752,797 filed May 23, 2007.	

Examiner Signature	/Kanji Patel/	Date Considered	10/10/2012
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¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

74095-8094.US01/LEGAL19721924.1



PALM INTRANET

Day : Thursday
Date: 9/20/2012
Time: 17:18:01

Inventor Name Search Result

Your Search was:

Last Name = GALIL

First Name = EREZ

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
10222412	7488576	20040032952	150	08/16/2002	TECHNIQUES FOR MODIFYING IMAGE FIELD DATA AS A FUNCTION OF RADIUS ACROSS THE IMAGE FIELD	GILES,NICHOLAS	GALIL, EREZ
10742669	7381450	20040257454	150	12/30/2003	TECHNIQUES FOR MODIFYING IMAGE FIELD DATA	GILES,NICHOLAS	GALIL, EREZ
10776696	7388610	20050041806	150	02/02/2004	TECHNIQUES OF MODIFYING IMAGE FIELD DATA BY EXTRAPOLATION	GILES,NICHOLAS	GALIL, EREZ
11756733	Not Issued	20080055426	30	06/01/2007	Digital Camera with Selectively Increased Dynamic Range By Control of Parameters During Image Acquisition	CUTLER,ALBERT	GALIL, EREZ
12140257	7817196		150	06/16/2008	TECHNIQUES OF MODIFYING IMAGE FIELD DATA BY EXTRAPOLATION	GILES,NICHOLAS	GALIL, EREZ
12144616	7834921		150	06/23/2008	COMPENSATION TECHNIQUES FOR VARIATIONS IN IMAGE FIELD DATA	GILES,NICHOLAS	GALIL, EREZ
12176283	7967195	20080273103	150	07/18/2008	TECHNIQUES FOR MODIFYING IMAGE FIELD DATA AS A FUNCTION OF RADIUS ACROSS THE IMAGE FIELD	GILES,NICHOLAS	GALIL, EREZ
12903114	8718037	20110025889	150	10/12/2010	TECHNIQUES OF MODIFYING IMAGE FIELD DATA BY EXTRAPOLATION	GILES,NICHOLAS	GALIL, EREZ
12961400	Not Issued		30	12/06/2010	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT	PATEL,KANJIBHAI	GALIL, EREZ
13105813	Not Issued	20120120197	30	05/11/2011	APPARATUS AND METHOD FOR SHARING HARDWARE BETWEEN GRAPHICS AND LENS DISTORTION OPERATION TO GENERATE PSEUDO 3D DISPLAY	DASTOURI,MEHRDAD	GALIL, EREZ
61022139	Not Issued		159	01/18/2008	High Dynamic Range Camera Using LCD for Area Based Light Attenuation		GALIL, EREZ
61022457	Not Issued		159	02/29/2008	A/D Signal Conversion by Reducing External Effects Thereby Improving Accuracy of the Sampling Timing of the Correlated Double Sampling CDS Circuitry in the Signal Conversion		GALIL, EREZ
61285063	Not Issued		159	12/09/2009	Content Based Dynamic Range Correction		GALIL, EREZ
61334018	Not Issued		159	05/12/2010	Apparatus and Method for Sharing Hardware Between Graphics and Lens Distortion Operation to Generate Pseudo 3D Display		GALIL, EREZ

Inventor Search Completed: No Records to Display.

Search Another: Inventor

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Complete if Known		
			Application Number	12/961,400-Conf. #9077	
			Filing Date	December 6, 2010	
			First Named Inventor	Erez Galil	
			Art Unit	2422 2624	
			Examiner Name	Not Yet Assigned Kanji Patel	
Sheet	1	of	1	Attorney Docket Number	74095-8094.US01

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/K.P./	AA	US-7,899,267	03-01-2011	Dvir	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/K.P./	CA	Notice of Allowance Mailed October 5, 2010 in Co-Pending U.S. Patent Application Number 11/752,797 filed May 23, 2007.	

Examiner Signature	/Kanjibhai Patel/	Date Considered	09/21/2012
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6353	face same pixels same detect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:04
L2	0	1 same dynamic adj range adj correct\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:06
L3	0	1 and dynamic adj range adj correct\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:06
L4	382	dynamic adj range adj correct\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:07
L5	36	4 and (face or facial)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:07
L6	20	5 and pixels	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:07
L7	20	6 and (gain or intensity or contrast or brightness or dark\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:08
L8	17	7 and detect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:19
L9	17	8 and (correct\$4 or adjust\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:20
L10	11	9 and predetermined	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:31
L11	0	9 and predetermined adj object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:32
L12	23631	detect\$3 near (face or predetermined adj object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:34
L13	305	detect\$3 near predetermined adj object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:34
L14	38	13 same face	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:34
L15	1	14 same (correct\$3 or adjust\$4 or modif\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/09/20 16:35
L16	0	14 and dynamic adj range	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2012/09/20 16:36

				DERWENT; IBM_TDB				
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9/ 20/ 2012 5:10:50 PM

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5672	detect\$3 near face	USPAT	OR	OFF	2012/09/21 13:16
L2	997	1 same (correct\$4 or adjust\$4)	USPAT	OR	OFF	2012/09/21 13:18
L3	147	2 same predetermined	USPAT	OR	OFF	2012/09/21 13:18
L4	28	3 same (object or type)	USPAT	OR	OFF	2012/09/21 13:18
L5	9	4 and dynamic	USPAT	OR	OFF	2012/09/21 13:41
L6	9	5 and range	USPAT	OR	OFF	2012/09/21 13:41
L7	7	6 and gain	USPAT	OR	OFF	2012/09/21 13:41
L8	1704	dynamic adj range near2 (correct\$4 or adjust\$4)	USPAT	OR	OFF	2012/09/21 13:57
L9	111	8 same (face or object)	USPAT	OR	OFF	2012/09/21 13:57
L10	6	9 same predetermined	USPAT	OR	OFF	2012/09/21 13:58
L11	2	10 and enhanc\$4	USPAT	OR	OFF	2012/09/21 14:02
L12	0	11 and face	USPAT	OR	OFF	2012/09/21 14:32
L13	1	("7899287").PN.	USPAT; USOCR	OR	OFF	2012/09/21 14:34
L14	4	((("7650045") or ("7580566") or ("7489072") or ("7321112")).PN.	USPAT; USOCR	OR	OFF	2012/09/21 14:35
L15	12	((("7650045") or ("7580566") or ("7489072") or ("7321112") or ("4466018") or ("5012333") or ("6788822") or ("6807299") or ("6822762") or ("6862373") or ("6982811") or ("6975418")).PN.	USPAT; USOCR	OR	OFF	2012/09/21 14:39
L16	6	15 and dynamic	USPAT	OR	OFF	2012/09/21 14:42
L17	6	15 and dynamic adj range	USPAT	OR	OFF	2012/09/21 14:43
L18	2	17 and detect\$3	USPAT	OR	OFF	2012/09/21 14:43

9/ 21/ 2012 2:55:33 PM

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Complete if Known		
			Application Number	12/961,400-Conf. #9077	
			Filing Date	December 6, 2010	
			First Named Inventor	Erez Galil	
			Art Unit	2422	
			Examiner Name	Not Yet Assigned	
Sheet	1	of	1	Attorney Docket Number	74095-8094.US01

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	US-7,899,267	03-01-2011	Dvir	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CA	Notice of Allowance Mailed October 5, 2010 in Co-Pending U.S. Patent Application Number 11/752,797 filed May 23, 2007.	

Examiner Signature	Date Considered
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Electronic Acknowledgement Receipt	
EFS ID:	9666012
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	Jordan Michael Becker/Crystal Fong
Filer Authorized By:	Jordan Michael Becker
Attorney Docket Number:	74095-8094.US01
Receipt Date:	15-MAR-2011
Filing Date:	06-DEC-2010
Time Stamp:	18:25:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2011_03_15_15_21_11.pdf	262353 6c09e5119331891ae48dd88e7e4e2dd8990d7c9a	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	3
Warnings:			
Information:			
Total Files Size (in bytes):		262353	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>			

Docket No.: 74095-8094.US01
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Erez GALIL

Customer No. 97848

Application No.: 12/961,400

Confirmation No.: 9077

Filed: December 6, 2010

Art Unit: 2422

For: DYNAMIC RANGE CORRECTION BASED
ON IMAGE CONTENT

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Sir:

Pursuant to 37 C.F.R. §§1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 C.F.R. §1.97(b)(3)).

Copies of any co-pending application and/or office actions cited on the accompanying Form PTO/SB08 are available on PAIR and will be provided to the Examiner upon request.

In accordance with 37 C.F.R. §1.98(a)(2)(ii), Applicant has not submitted copies of U.S. patents and U.S. patent applications. Applicant submits herewith copies of foreign patents and non-patent literature in accordance with 37 C.F.R. §1.98(a)(2).


This Information Disclosure Statement is not to be construed as a representation that: (i) a search has been made; (ii) additional information that may be material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the cited information is, or is considered to be, material to patentability. In addition, applicant does not admit that any enclosed item of information constitutes prior art to the subject invention and specifically reserves the right to demonstrate that any such reference is not prior art.

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. §1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-2207, under Order No. 74095-8094.US01.

Dated: 3/15/11

Respectfully submitted,

By 
Jordan M. Becker
Registration No.: 39,602
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
12/961,400	12/06/2010	2422	2038	74095-8094.US01	34	4

CONFIRMATION NO. 9077

97848
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

UPDATED FILING RECEIPT



0000000045380354

Date Mailed: 01/12/2011

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Erez Galil, Mountain View, CA;

Assignment For Published Patent Application

Zoran Corporation, Sunnyvale, CA

Power of Attorney: The patent practitioners associated with Customer Number 97848

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/285,063 12/09/2009

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

If Required, Foreign Filing License Granted: 12/17/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/961,400**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

Preliminary Class

348

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 12/961,400				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	330			
SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A			N/A	540			
EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	220			
TOTAL CLAIMS <small>(37 CFR 1.16(i))</small>	34	minus 20 = *	14			x 52 =	728			
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	4	minus 3 = *	1			x 220 =	220			
APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$270 (\$135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	2038			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=		x	=
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total <small>(37 CFR 1.16(i))</small>	*	Minus	**	=	x	=		x	=
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
<div style="font-size: x-small;"> * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. </div>										

Docket No.: 74095-8094.US01
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Erez GALIL

Customer No. 97848

Application No.: 12/961,400

Confirmation No.: 9077

Filed: December 6, 2010

Art Unit: 2422

For: **DYNAMIC RANGE CORRECTION BASED ON
IMAGE CONTENT**

Examiner: Unassigned

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS

Commissioner for Patents -- **MAIL MISSING PARTS**
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir/Madam:

Applicant hereby responds to the Notice to File Corrected Application Papers
mailed December 22, 2010 as follows:

In the Drawings begin on page 2 of this paper.

Remarks begin on page 3 of this paper.

In the Drawings:

Applicant hereby submits Formal Drawings, Figures 8A and 8B (two sheets), sheets labeled as "Replacement Sheet" for the above-identified patent application.

Also, Applicant hereby submits Figure 8C (one sheet), sheet labeled as "Replacement Sheet" to be consistent with Figures 8A and 8B.

REMARKS

In the Notice to File Corrected Application Papers mailed December 22, 2010, it indicates that replacement drawings in compliance with 37 C.F.R. §1.84 and 37 C.F.R. §1.121(d) are required. Figures 8A and 8B submitted to the Office are not acceptable because the drawings are not electronically reproducible because portions of Figures 8A and 8B are missing and/or blurry. Applicant hereby submits Figures 8A and 8B as replacement drawings for the above-identified application. No new matter has been added.

Please note that portions of Figures 8A and 8B are intended to be dark to help illustrate less-than-optimal image quality, as described in paragraphs [0064]-[0067] of the specification.

Also, Applicant hereby submits Figure 8C (one sheet), sheet labeled as "Replacement Sheet" to be consistent with Figures 8A and 8B.

There are no fees to be due in response to this Notice. However, if there are any additional fees due, please charge Deposit Account No. 50-2207, under Order No.

74095-8094.US01

Dated: 1/3/11

Respectfully submitted,

By

Jordan M. Becker

Registration No.: 39,602

PERKINS COIE LLP

P.O. Box 1208

Seattle, Washington 98111-1208

(650) 838-4300

(650) 838-4350 (Fax)

Attorney for Applicant

74095-8094.US01A.LEGAL19868879.1

REPLACEMENT SHEET

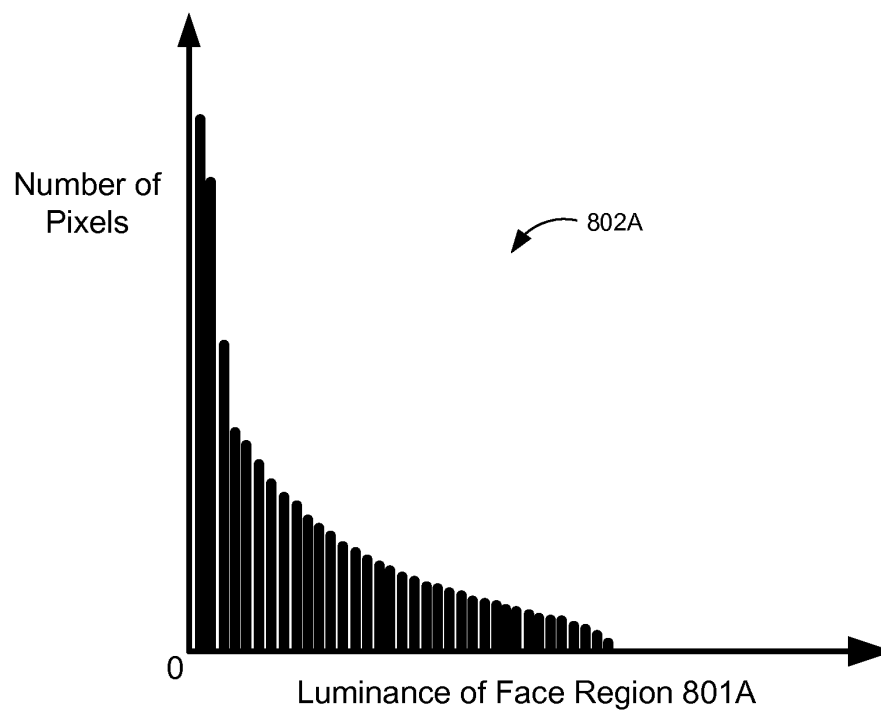


Fig. 8A

REPLACEMENT SHEET

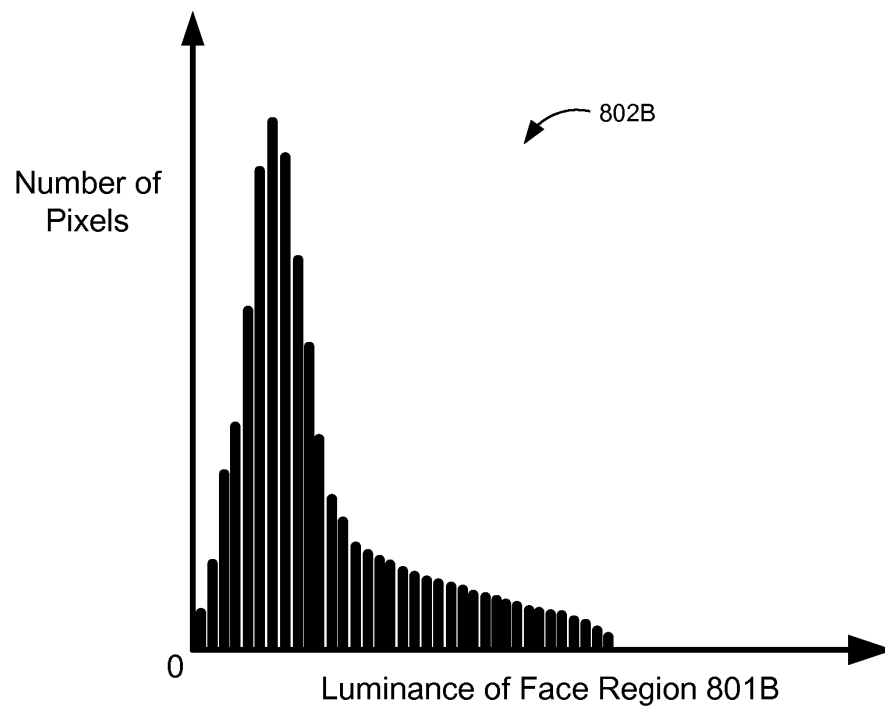
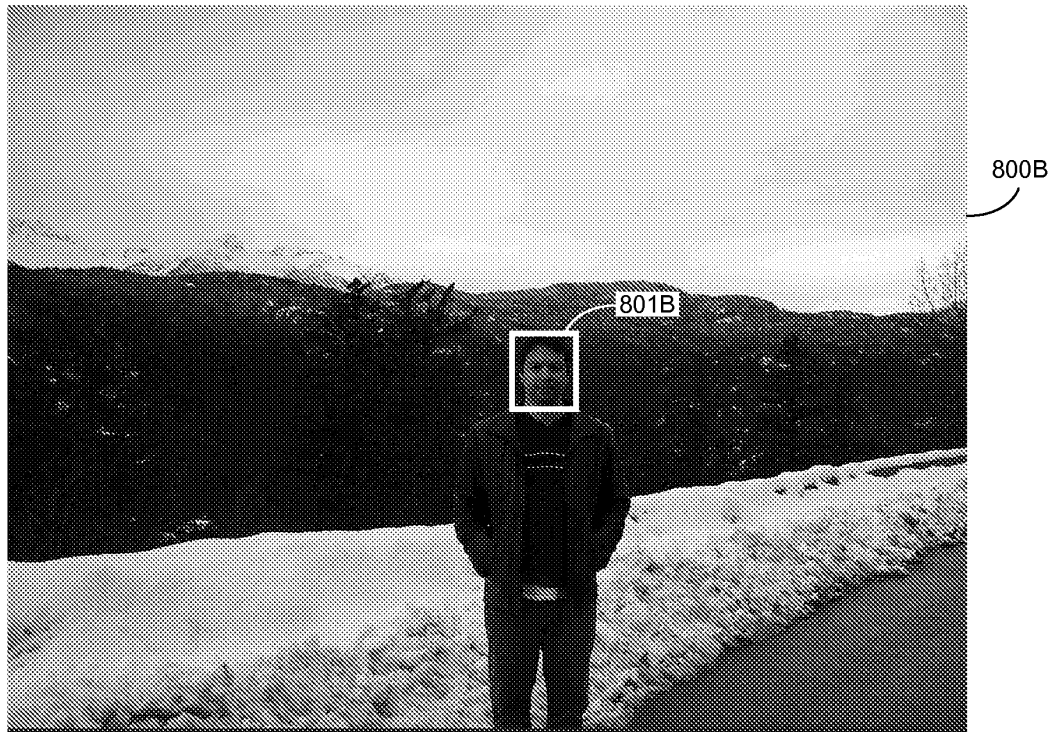


Fig. 8B

REPLACEMENT SHEET

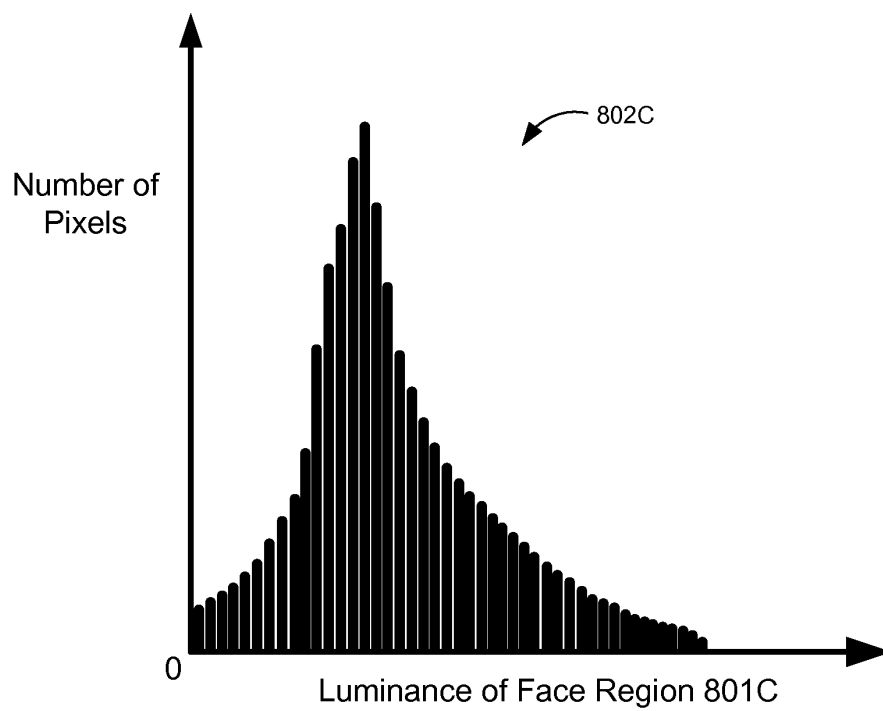
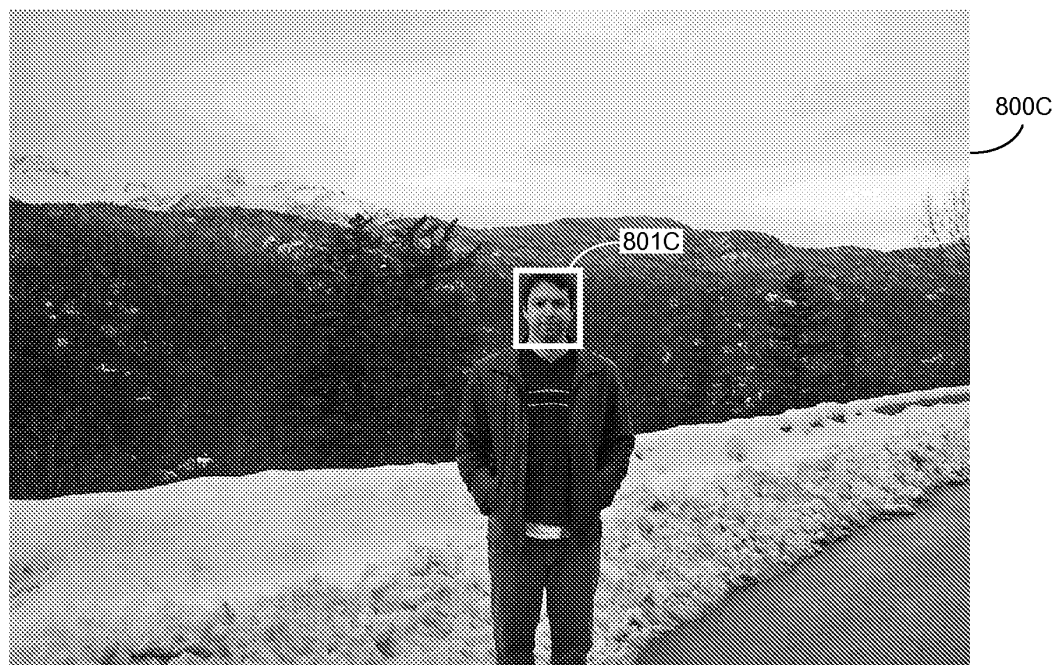


Fig. 8C

Electronic Acknowledgement Receipt	
EFS ID:	9158905
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	Jordan Michael Becker/Crystal Fong
Filer Authorized By:	Jordan Michael Becker
Attorney Docket Number:	74095-8094.US01
Receipt Date:	04-JAN-2011
Filing Date:	06-DEC-2010
Time Stamp:	13:38:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	2011_01_03_16_23_01.pdf	184249 5dfdc8542e2439338ca916d0d13b25547432d6f	no	3

Warnings:

Information:

2	Drawings-only black and white line drawings	ReplacementSheets.pdf	705174 887846b204477ac7963f1a9ff4f5bf7664c6f98c	no	3
Warnings:					
Information:					
Total Files Size (in bytes):				889423	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

SCORE Placeholder Sheet for IFW Content

Application Number: 12961400

Document Date: 1/4/2011

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (<http://es/ScoreAccessWeb/>).
- External customers may access SCORE content via the Public and Private PAIR interfaces.



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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/961,400	12/06/2010	Erez Galil	74095-8094.US01

CONFIRMATION NO. 9077

97848
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

FORMALITIES LETTER



Date Mailed: 12/22/2010

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings submitted to the Office are not electronically reproducible because portions of figures 8A,8B are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.

<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/fasrat/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/961,400	12/06/2010	Erez Galil	74095-8094.US01

CONFIRMATION NO. 9077

POA ACCEPTANCE LETTER

97848
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208



Date Mailed: 12/22/2010

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/06/2010.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/asahle/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 12/961,400				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	330			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	540			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	220			
TOTAL CLAIMS (37 CFR 1.16(i))	34	minus 20 = *	14			x 52 =	728			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 220 =	220			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$270 (\$135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	2038			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
12/961,400	12/06/2010	2422	2038	74095-8094.US01	34	4

CONFIRMATION NO. 9077

97848
Perkins Coie LLP
PO Box 1208
Seattle, WA 98111-1208

FILING RECEIPT



OC000000045029261

Date Mailed: 12/22/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Erez Galil, Mountain View, CA;

Assignment For Published Patent Application

Zoran Corporation, Sunnyvale, CA

Power of Attorney: The patent practitioners associated with Customer Number 97848

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/285,063 12/09/2009

Foreign Applications

If Required, Foreign Filing License Granted: 12/17/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/961,400**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

Title

DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

Preliminary Class

348

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

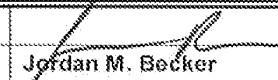
This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.


UTILITY PATENT APPLICATION TRANSMITTAL <small>(ONLY FOR NEW NONPROVISIONAL APPLICATIONS UNDER 37 CFR 1.53(b))</small>		Attorney Docket No. 74095-8094.US01 First Inventor Erez Galil Title DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT Express Mail Label No.
APPLICATION ELEMENTS <small>See MPEP chapter 600 concerning utility patent application contents.</small>		ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
1. <input type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB-17) 2. <input type="checkbox"/> Applicant claims small entity status. <small>See 37 CFR 1.27.</small> 3. <input checked="" type="checkbox"/> Specification [Total Pages 30] <small>Both the claims and abstract must start on a new page. (For information on the preferred arrangement, see MPEP 602.01(a).)</small> 4. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets 13] 5. Oath or Declaration [Total Sheets 3] a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> A copy from a prior application (37 CFR 1.63(d)) <small>(for continuation/divisional with Box 19 completed)</small> c. <input type="checkbox"/> DELETION OF INVENTOR(S) <small>Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(v).</small> 6. <input checked="" type="checkbox"/> Application Data Sheet. See 37 CFR 1.76 7. <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) <input type="checkbox"/> Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission <small>(if applicable, items a. - c. are required)</small> a. <input type="checkbox"/> Computer Readable Form (CRF) b. Specification Sequence Listing on: i. <input type="checkbox"/> CD-ROM or CD-R (2 copies), or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies		ACCOMPANYING APPLICATION PARTS 9. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) Name of Assignee: <div style="border: 1px solid black; height: 20px; width: 100%;"></div> 10. <input checked="" type="checkbox"/> 37 CFR 3.73(b) Statement <input checked="" type="checkbox"/> Power of Attorney <small>(when there is an assignee)</small> 11. <input type="checkbox"/> English Translation Document (if applicable) 12. <input type="checkbox"/> Information Disclosure Statement (PTO/SB-08 or PTO-1449) <input type="checkbox"/> Copies of citations attached 13. <input type="checkbox"/> Preliminary Amendment 14. <input type="checkbox"/> Return Receipt Postcard (MPEP 603) <small>(Should be specifically itemized)</small> 15. <input type="checkbox"/> Certified Copy of Priority Document(s) <small>(if foreign priority is claimed)</small> 16. <input checked="" type="checkbox"/> Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. <input checked="" type="checkbox"/> Other: Copy of Assignment <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
18. If a CONTINUING APPLICATION , check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76: <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No.: _____ Prior application information: Examiner _____ Art Unit: _____		
19. CORRESPONDENCE ADDRESS		
<input checked="" type="checkbox"/> The address associated with Customer Number: 97848 OR <input type="checkbox"/> Correspondence address below		
Name: _____		
Address: _____		
City: _____	State: _____	Zip Code: _____
Country: _____	Telephone: _____	Email: _____
Signature: 		Date: 12/6/10
Name (Print/Type): Jordan M. Becker		Registration No. (Attorney/Agent): 39,602

74095-8094 US01/LEGAL19720728.1

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)	First Named Inventor	Erez Galil
	Title	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
	Attorney Docket Number	74095-8094.US01

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).


Signature

Jordan M. Becker
Typed or printed name

(650) 838-4300
Telephone Number

12/6/10
Date

39,602
Registration Number, if applicable

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing**.

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

Application Data Sheet

Application Information

Application Type::	Regular
Subject Matter::	Utility
Suggested Group Art Unit::	None
CD-ROM or CD-R?::	None
Sequence submission?::	None
Computer Readable Form (CRF)?::	No
Title::	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
Attorney Docket Number::	74095-8094.US01
Request for Early Publication?::	No
Request for Non-Publication?::	Yes
Total Drawing Sheets::	13
Small Entity?::	No
Petition included?::	No
Secrecy Order in Parent Appl.?::	No

Applicant Information

Applicant Authority Type::	Inventor
Primary Citizenship Country::	Israel
Status::	Full Capacity
Given Name::	Erez
Family Name::	Galil
City of Residence::	Mountain View
State or Province of Residence::	CA
Country of Residence::	US
Street of mailing address::	208 Central Avenue
City of mailing address::	Mountain View
State or Province of mailing address::	CA
Postal or Zip Code of mailing address::	94043

Correspondence Information

Correspondence Customer Number::	97848
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Representative Information

Representative Customer Number::	97848
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Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	An application claiming the benefit under 35 USC 119(e)	61/285,063	12/09/09

Foreign Priority Information**Assignee Information**

Assignee name:: Zoran Corporation
Street of mailing address:: 1390 Kifer Road
City of mailing address:: Sunnyvale
State or Province of mailing address:: CA
Postal or Zip Code of mailing address:: 94086

74095-8094.US01/LEGAL19720863.1

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)	Attorney Docket Number	74095-8094.US01
	First Named Inventor	Erez Galil
	COMPLETE IF KNOWN	
	Application Number	Not Yet Assigned
	Filing Date	Concurrently Herewith
	Art Unit	N/A
<input checked="" type="checkbox"/> Declaration Submitted With Initial Filing	OR	<input type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (f)) required)
Examiner Name		Not Yet Assigned

I hereby declare that: (1) Each inventor's residence, mailing address, and citizenship are as stated below next to their name; and (2) I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

(Title of the Invention)

the application of which

☒ is attached hereto

OR

☐ was filed on (MM/DD/YYYY) _____ as United States Application Number or PCT International

Application Number _____ and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

Authorization To Permit Access To Application by Participating Offices

☐ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified patent application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified patent application is filed to have access to the above-identified patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the above-identified patent application with respect to: 1) the above-identified patent application-as-filed; 2) any foreign application to which the above-identified patent application claims priority under 35 USC 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application; and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Offices.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION — Utility or Design Patent Application

Claim of Foreign Priority Benefits

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application number(s) are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

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DECLARATION — Utility or Design Patent Application

Direct all
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The address
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Customer Number:

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address below

Name

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WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available. Petitioner/applicant is advised that documents which form the record of a patent application (such as the PTO/SB/01) are placed into the Privacy Act system of records DEPARTMENT OF COMMERCE, COMMERCE-PAT-7, System name: *Patent Application Files*. Documents not retained in an application file (such as the PTO-2038) are placed into the Privacy Act system of COMMERCE/PAT-TM-10, System name: *Deposit Accounts and Electronic Funds Transfer Profiles*.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

NAME OF SOLE OR FIRST INVENTOR:



A petition has been filed for this unsigned inventor

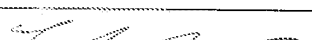
Given Name
(first and middle [if any])

Erez

Family Name
or Surname

Galil

Inventor's
Signature



Date

12/1/10

Residence: City

Mountain View

State

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Country

United States of America

Citizenship

Israel

Mailing
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State

CA

Zip

94043

Country

United States of America



Additional inventors or a legal representative are being named on the _____ supplemental sheet(s) PTO/SB/02A or 02LR attached hereto.

74095-8094.US01/LEGAL19616373.1

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Zoran Corporation
 Application No./Patent No.: Not Yet Assigned Filed/Issue Date: Concurrently Herewith
 Titled: DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

Zoran Corporation is Corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
 (The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ an assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made) the patent application/patent identified above by virtue of either:

A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____
 The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
2. From: _____ To: _____
 The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
3. From: _____ To: _____
 The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Jordan M. Becker (Reg. No. 39,602)
 Signature
 Printed or Typed Name

12/6/10
 Date
Attorney for Applicant
 Title

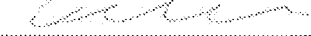
ASSIGNMENT BY INVENTOR

This Assignment is by **Erez Galil** (the "Assignor"), residing at **208 Central Avenue, Mountain View, California 94043**. The Assignor has invented one or more certain inventions (the "Invention(s)") described in a Patent application for Letters Patent of the United States entitled **DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT** (the "Application"), filed on _____ as U.S. Application No. _____. The Assignor authorizes the Assignee, identified below, or its representatives to insert the application number of the Application when known.

Zoran Corporation, a Corporation of Delaware having its principal place of business at **1390 Kifer Road, Sunnyvale, California 94086** ("Assignee"), desires to acquire the entire right, title and interest in and to the Invention(s) and the Application, and in and to any patents (collectively, "Patents") that may be granted for the Invention(s) in the United States or in any foreign countries.

For valuable consideration, the receipt and sufficiency of which Assignor acknowledges, Assignor hereby sells, assigns, and transfers to Assignee, its successors, legal representatives and assigns, the entire right, title and interest in and to: the Invention(s), the Application, and any Patents; any divisions, continuations, and continuations-in-part of the Application and any other application claiming priority rights from the Application; any reissues, reexaminations, or extensions of any and all Patents; the right to file foreign applications directly in the name of Assignee; and the right to claim priority rights deriving from the Application (collectively, the "Rights"). Assignor warrants that Assignor owns the Rights, and that the Rights are unencumbered. Assignor also agrees to not sign any writing or do any act conflicting with this assignment, and, without further compensation, sign all documents and do such additional acts as Assignee deems necessary or desirable to: perfect Assignee's enjoyment of the Rights; conduct proceedings regarding the Rights, including any litigation or interference proceedings; or perfect or defend title to the Rights. Assignor requests the Commissioner of Patents to issue any Patent of the United States that may be issued on the Invention(s) to Assignee. This Assignment may be executed in counterparts.

Date: 12/1/10

Signature: 
Erez Galil

POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number		Not Yet Assigned	
	Filing Date		Concurrently Herewith	
	First Named Inventor		Erez Galil	
	Title	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT		
	Art Unit		N/A	
	Examiner Name		Not Yet Assigned	
Attorney Docket No.		74095-8094.US01		

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.
 OR
☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

97848

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number	Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

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 OR
☒ The address associated with Customer Number:

97848

OR

☐ Firm or Individual Name

Address

City	State	Zip	
Country	Telephone	Email	

I am the:

☐ Applicant/Inventor.
 OR
☒ Assignee of record of the entire interest. See 37 CFR 3.71.
 Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____

SIGNATURE of Applicant or Assignee of Record

Signature	Date
Name	12/11/10
Telephone	
Title and Company	
Vice President and General Counsel – Zoran Corporation	

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ *Total of 1 forms are submitted.

APPROVED
LEGAL

UNITED STATES PATENT APPLICATION

FOR

DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

INVENTOR:
Erez Galil

Prepared by:

PERKINS COIE LLP
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(650) 838-4300

Attorney's Docket No. 74095-8094.US01
Client Reference No.: MZCO08020.01

DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 61/285,063, filed on December 9, 2009, which is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] At least one embodiment of the present invention pertains to dynamic range correction of digital image data, and more particularly, to a technique for dynamic range correction of digital image data based on image content.

BACKGROUND

RELATED ART

[0003] Most digital images encode only a small fraction of the intensities that a person can see in a real scene. Detail visible to the human eye tends to be lost in dark and bright portions of an image due to the limited dynamic range of the image sensor and/or the display device. For example, current image sensors provide contrast ratios in the range of 200:1, *i.e.*, a dynamic range of about 46 dB, whereas the human visual cortex has a dynamic range approaching 80 dB.

[0004] Dynamic range limitations are particularly notable in digital cameras (both still and video). Consider the situation of taking a digital picture of a person standing in a dark portion of a room with a bright open window in the background. In this situation the image sensor may not be able to acquire both the details of the bright view coming through the window and the details of the person's face. In situations like this, it is desirable to compensate for the lack of sufficient dynamic range. Conventionally this is done by adjusting the exposure time and/or employing dynamic range compression/enhancement methods. However, these methods, while providing some improvement, still tend to produce images that lack details which are important to the end user.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] One or more embodiments of the present invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements.

[0006] Figure 1 is a block diagram of an imaging system in which the dynamic range correction (DRC) techniques introduced here can be implemented.

[0007] Figures 2A through 2D illustrate details of the DRC unit according to different embodiments.

[0008] Figure 3 illustrates details of the filtering and nonlinear combining operation according to one embodiment.

[0009] Figure 4 shows a more general embodiment of the filtering and nonlinear combining operation.

[0010] Figure 5 shows the elements of the image processing unit (IPU) of Figure 1 according to one embodiment.

[0011] Figure 6 is a flow diagram illustrating a process of dynamic range correction according to one embodiment.

[0012] Figure 7 is a graph illustrating the effects of dynamic range correction.

[0013] Figure 8A shows an image and corresponding brightness histogram for a case with no dynamic range correction applied.

[0014] Figure 8B shows an image and corresponding brightness histogram for a case with dynamic range correction applied without knowledge of image content.

[0015] Figure 8C shows an image and corresponding brightness histogram for a case with dynamic range correction applied based on knowledge of image content.

DETAILED DESCRIPTION

[0016] The technique introduced here identifies important content in an image, such as faces. The location of the content (e.g., faces) is then used to determine the type and/or amount of an adjustment, such as dynamic range correction (DRC), to apply. For example, using the location of a dark face to determine the exposure time, the exposure can be adjusted so that the face is bright and visible. Another example is adjusting dynamic range compression parameters so that a gain applied to a face is increased digitally. In that case, the face can be made bright and visible without causing loss of information in the bright areas of the image (saturation).

[0017] Faces are often an important type of physical object to detect when depicted in an image and are therefore discussed here, only for purposes of illustration, when explaining the DRC technique introduced here. However, the technique introduced here can be based on detecting any particular type or types of physical object depicted in an image, not just faces (and not necessarily even including faces). Additionally, the resulting adjustment can be of any image-related parameter or parameters.

[0018] The term "physical object" as used herein is to be understood in contrast with non-physical, virtual or abstract objects and concepts, such as pixels, data, and image characteristics and parameters. A physical object is something that exists in the real (physical) world and which can be visually recognized as such by a human being when depicted in a digital image. Techniques for detecting faces and other arbitrary objects and patterns in an image are known in the art and are therefore not described in detail herein.

[0019] Hence, the technique introduced here includes a method and apparatus for dynamic range correction based on image content. Known prior techniques of dynamic range correction do not take into consideration or use the content of an image, at least to the extent such content has semantic significance (meaning) to a human viewer. For example, such methods do not consider or

apply the principle that showing the details of certain types of objects depicted in an image often should have higher priority than the rest of the image. As a more specific example, in many instances showing the details of a person's face in the foreground of an image should be given higher priority than showing the details of a view in the background of the image. The technique introduced here considers and applies this principle in performing dynamic range correction.

[0020] Thus, the technique introduced here includes a method and a corresponding apparatus, where the method according to one embodiment includes making a determination that a first portion of digital image data represents a physical object of a predetermined type, determining an amount of a parameter such as gain to apply to the first portion of the digital image data, based on the determination that the first portion of the digital image data represents a physical object of the predetermined type, and applying the determined amount of the parameter to the first portion of the digital image data. The amount of the parameter applied to the first portion may be a different amount than that applied to the image as a whole (or at least to those parts of the image data that do not represent a physical object of the predetermined type).

[0021] In one embodiment, an image processing device includes an object detection unit which identifies and outputs the locations of predetermined types of physical objects (e.g., faces) represented in a digital image. The locations are provided as input to a DRC unit, which, based on that input, determines the digital gain to be applied to pixels in the image. For normal (e.g., non-face) image data, the DRC unit applies a digital gain to any given pixel depending upon whether it is part of such a specified type of object in the image. For example, a higher gain may be applied to pixels that are part of a face than for other pixels of the image.

[0022] The digital gain can be obtained or calculated from a gain lookup table. The output of the lookup table is a gain map, i.e., a two-dimensional map of gain coefficients to be applied to input pixel intensity values. In one embodiment, a single gain lookup table contains one or more values to be used for specified

image content (e.g., faces) and separate values to be used for other image content, and the DRC unit selects the appropriate value for a given input pixel from the lookup table according to whether that pixel is part of a specified type of object. In another embodiment, the DRC unit uses a weighting factor (effectively, another game) to modify the gain obtained/calculated from the lookup table, according to whether the input pixel is part of a specified type of object. This in essence amounts to editing the gain map depending on the image content. In yet another embodiment, a particular gain lookup table is provided for specific image content (e.g., faces) and a separate gain look up table is provided for all other image content.

[0023] Embodiments described below employ a cascade of nonlinear edge preserving filters, and nonlinear pixel point operations, to calculate pixel gain or other pixel characteristics (e.g., chromaticity) in order to make object edge detail more visible, *i.e.*, to improve local contrast. Note, however, that other embodiments of the technique introduced here might not use cascaded filters or nonlinear pixel point operations.

[0024] The described embodiments employ a non-linear combination of a plurality of gray level images, L , of L_n through L_w , where L is a gray image extracted from the input image, $L = \log(\max(R, G, B))$, and L_n through L_w are gray images obtained by applying two-dimensional low-pass filters to ascending scale regions from the narrow (L_n) to the wide (L_w) of the image. In one implementation, two low-pass filters are applied to surrounding neighborhoods of a current pixel of narrow and of wide extent. In other cases, the filter sections can be used individually. Alternatively, three or more low-pass filters can be employed in order to obtain even finer edge preserving transitions. The coefficients used to combine L with its neighbors L_n through L_w are automatically extracted from high-pass filtered images $H_n = L - L_n$, through $H_w = L - L_w$. Multiplying each color component of the input image by one or more pixel dependent gain or attenuation factors, using a nonlinear mapping function that may either lighten shadow regions or darken

highlights or change the chromaticity of pixels in either of these regions, generates the output image. Altering input image pixel chromaticity (color balance) can be done separately, or in combination with, overall pixel gain adjustment to further enhance the appearance of image details in regions of the image close to positive (the highlight regions) or negative (the shadow regions) saturation.

[0025] Note that the content-based technique introduced here is not necessarily limited to determining a gain adjustment or to DRC. For example, other types of corrections or adjustments can be made based on image content as described herein, such as contrast enhancement, color manipulation, sharpness adjustment, noise reduction, skin smoothing, etc.

[0026] The following paragraphs include a description of the various aspects of the DRC method, flow, and apparatus. The first implementation described is a basic configuration, using just two low pass filters for the calculation cascade; more refined implementations using additional filter sections are discussed further below.

[0027] The various embodiments presented below use the current pixel in conjunction with a plurality of signals derived from one or more successively widening neighborhoods of the current pixel to refine the estimate of the enhancement gain for the current pixel. The process is preferably performed after color interpolation, that is, demosaicing of Bayer grid sensor image data when a Bayer grid format sensor is employed, so there is no need to estimate the color components of the current pixel. Rather, the near neighborhood of the current pixel may be used in the tone enhancement process to determine the pixel gain, in addition to the (at least one other) wider neighborhoods. This approach differs from at least some prior art in that it uses a cascade of widening scales, or neighborhoods, in determining the dynamic range modification to be performed, as well as in the automatic extraction of the coefficients. Although the following discussion is given in terms of a single gain factor for each pixel, more generally this can be one or more pixel dependent gain or attenuation factors or other factors, such as changing the chromaticity of pixels in either shadow regions or

highlights, that can enhance the perception of image details at the extreme ends of a system's dynamic range.

[0028] Figure 1 shows a digital imaging system, such as a digital still or video camera. The imaging system includes an image acquisition unit 101 and an Image Processing Unit (IPU) 11. An image is acquired by the image acquisition unit 101, which includes various front-end digital image acquisition elements (lens, sensor array, analog-to-digital conversion, etc.) that are well known in the art.

[0029] In the illustrated embodiment, the IPU 111 includes RAM 113, a Color Interpolation (CI) unit 115 and a DRC unit 117. The acquired image data is supplied by the image acquisition unit 101 to the IPU 111 as, for example, raw image data, or in a format such as RGB, YCbCr422, YCbCr444, or any other known or convenient format in which the data can be received in a random access memory (RAM) 113. The IPU 111 may also contain other elements which are not germane to this discussion and are therefore not illustrated.

[0030] In the illustrated embodiment, the DRC unit 117 receives a 3-color x 12-bit linear RGB image constructed by the CI unit 115 (if needed). The RGB output image of the DRC unit 117, here again assumed to be a 3-color x 12-bit linear RGB image, is then processed by the rest of the IPU pipeline and, typically, eventually JPEG encoded. More generally, other formats for the image data, such as 3x8 non-linear RGB, YUV, and so on, can be used. Additionally, the DRC unit 117 can be located in other locations within the image processing pipeline.

[0031] In accordance with the technique introduced here, the IPU 111 also includes an object detection unit 118. The object detection unit 118 receives the input image data (either from the CI unit 115 as shown or directly from the RAM 113) and detects the presence and locations of objects of a predetermined type or types (e.g., faces) in the input image data. The object detection unit 118 can use any known or convenient algorithm or architecture for this purpose. The object detection unit 118 generates a content map 119 as output and provides it to the DRC unit 117, which computes a digital gain for each pixel for purposes of DRC

based on the content map 119. Details of how the digital gain can be computed are discussed further below.

[0032] The content map 119 in one embodiment is a two-dimensional data structure indicating the locations of any objects of the predetermined type or types in the input image data. The content map 119 can be, for example, a matrix of binary values, each corresponding to a different pixel in the input image, where a binary one (1) value indicates that the corresponding pixel is part of an object of a predetermined type and a binary zero (0) value indicates that the corresponding pixel is not part of an object of a predetermined type. In other embodiments, the content map 119 may have a greater range of possible values.

[0033] Also, in another embodiment the correction technique introduced here (including DRC unit 117 and/or object detection unit 118) could be implemented at a different stage of the pipeline than what is shown in Figure 1. For example, the technique could instead be implemented prior to storing the image data in RAM 111, such as within or immediately after the image acquisition unit 101.

[0034] An illustrative configuration of the DRC unit 117 is schematically shown in Figure 2. The DRC unit 117 computes a gain (or attenuation), $G(s)$, for each sensor pixel, $s=(i,j)$. Each color component (C_{in}) of the input RGB image (R_{in} , G_{in} , B_{in}) is multiplied by $G(s)$ (via multiplier 208) to produce the output color component for that pixel $C_o(s)$:

$$C_o(s)=G(s)*C_{in},$$

where $C=R, G$ or B and in the above equation, and following discussion, “*” represents multiplication. Note that the gain determined from an $L(s)$ in one format, such as RGB, may be applied to another image data format, such as YUV, HSV and so on. Although the illustrated embodiment uses a single $G(s)$ for all channels at a given pixel, more generally, different factors can be used for the different channels in image data formats that have more than a single channel per pixel.

[0035] As shown in Figure 2, the color components of the input RGB image are received at block 201, where the gray intensity image, $I(s)$, is determined as the maximum value of the three color components of the input image pixel (R_{in} , G_{in} , B_{in}):

$$I(s) = \max(R_{in}(s), G_{in}(s), B_{in}(s)).$$

[0036] This approach differs from other methods, which use the luminance (Y) as in YCbCr, YUV, or other combination (e.g., $Y = 0.3R + 0.6G + 0.1B$) and which may suffer from color saturation. Instead, the illustrated embodiment uses the $\max(R, G, B)$, which is more suitable to prevent color saturation.

[0037] In block 203, the log of $I(s)$ is formed (for example, by use of a look-up table or other computational means) as $L(s) = \text{Log}(I(s))$.

[0038] $L(s)$ then serves as the measure of the image strength that is input into block 205, where low-pass filtering and non-linear combining are performed to produce an image, $F(s)$, where details of this process in one embodiment are described with reference to Figure 3. The image $F(s)$ is applied to a gain look-up table 207 to determine the gain values $G(s)$.

[0039] Figure 7 illustrates an example of the effects of dynamic range correction, such as may be done by using the gain lookup table 207. Straight line 701 represents the line, $G(s) = 1.0$, i.e., where output pixel intensity equals input pixel intensity. Curved line 702 represents an example the effect of selectively modifying the gain $G(s)$ to increase the intensity of darker portions of an image, such as the face of a person standing in a shadow. Of course, other shaped curves could alternatively be used.

[0040] The content map 119 can be used by the DRC unit 117 in any of various ways to compute the gain values $G(s)$. For example, in one embodiment, shown in Figure 2A, the gain lookup table 207 contains one or more gain values $G(s)$ for use with pixels that are part of a detected object (e.g., a face) and one or more other gain values $G(s)$ for use with pixels that are not part of a detected object. A selection unit 209 in the DRC unit 117 selects the appropriate gain value

$G(s)$ for a given input pixel from the gain lookup table 207 according to whether or not a given input pixel is part of a detected object, as indicated by the content map 119.

[0041] In another embodiment, shown in Figure 2B, the DRC unit 117 uses a weighting factor $W(s)$ (which is effectively another gain value) to modify the gain $G(s)$ obtained/calculated from the gain lookup table 207, according to whether the input pixel is part of a detected object. This is shown in Figure 2 as the input of the content map to weight selection unit 210, which selects the appropriate weight value $W(s)$ and applies it to multiplier 208. This in effect amounts to editing the gain map according to the image content. For example, a greater weight value $W(s)$ may be selected if the pixel is part of a detected object of a predetermined type (e.g., a face) than if it is not.

[0042] In yet another embodiment, shown in Figure 2C, two separate gain lookup tables are provided, 207-1 and 207-2, one for use with pixels that are part of detected objects and the other for use with all other pixels, respectively. Selection unit 211 chooses a gain value from the appropriate lookup table, 207-1 or 207-2, depending on the image content, as indicated by the content map 119. In an extension of this embodiment, additional lookup tables could be provided, for example, if more than one type of object is to be detected and treated differently in the image.

[0043] In still another embodiment, shown in Figure 2D, the presence and location of a detected object is used to control operation of the filtering and nonlinear combining 205 for the corresponding pixels, as discussed further below.

[0044] Figure 6 illustrates a general process that may be performed by the DRC unit 117 accordance with one embodiment of the technique introduced here. Here the example of face detection is used to facilitate description, although other types of objects could be detected in addition or instead. At step 601, the process inputs a pixel intensity value (s) (see Figure 2) from the input image. At step 602 the process determines whether the pixel is part of a group of adjacent pixels that

collectively represent a face. If the outcome of this determination is negative, then at step 603 the process selects a normal gain value $G(s)$. If the outcome is affirmative, then the process branches to step 605, where an alternate gain value is selected. The process then applies the selected gain value, $G(s)$, (either directly or indirectly) to the input pixel intensity value $L(s)$ at step 604.

[0045] An example of filtering and non-linear processing block 205 to determine $F(s)$ from $L(s)$ is schematically diagrammed in Figure 3. In this basic embodiment, $L(s)$ is applied to two cascaded two-dimensional low-pass filters, respectively using narrow and wide neighborhoods of the pixel being treated, in order to form images L_n and L_w . These images are formed from narrow (e.g., about 5x5 pixels) and wide window support, respectively. The width of the wide window can be dependent on the image width; for example, it could be set as a percentage (e.g., 2% or 10%) of the image width. Note that although the discussion given here is for an embodiment having at least two filter stages, single-stage embodiments can also be used for some embodiments to compute gain or chromaticity factors.

[0046] As shown in Figure 3, $L(s)$ is received at the first stage of the filter, where it is filtered by the narrow window low pass filter (LPF_n) 301 to produce L_n . L_n is then combined with L in summer 311 to form the linear combination L_{pF} as output, where the coefficients of the combination are determined at 305 from H_n , the high-pass filtered of L , at summer 303 and are applied at 307 and 309. The second stage of the filter is similar to the first stage, except that the low-pass filter LPF_w 331 uses the wide support window and the output $F(s)$ is the linear combination of the low-pass filtered signal and the output of the preceding stage $L_{pF}(S)$ (hence, the cascading) instead of the input signal $L(s)$.

[0047] More specifically, the high-pass filter images H_n and H_w are respectively formed in the summers 303 and 333 by subtracting L_n and L_w from the input signal L :

$$H_n(s) = L(s) - L_n(s);$$

$$H_w(s) = L(s) - L(s).$$

[0048] The non-linear, pixel dependent coefficients α and β are respectively extracted from the high pass filter images at 305 and 335 using nonlinear mapping functions $\beta(H_n)$ and $\alpha(H_w)$:

$$\beta = \beta(H_n);$$

$$\alpha = \alpha(H_w)$$

[0049] In a basic embodiment, the nonlinear mappings $\beta(H_n)$ and $\alpha(H_w)$ can be predetermined.

[0050] Finally, the cascaded output $F(s)$ is formed by combining L with L_n and L_w according to the following equations:

$$F = \alpha * L_{pF} + (1 - \alpha) * L_w;$$

$$L_{pF} = \beta * L + (1 - \beta) * L_n;$$

where these combinations are respectively formed in summers 341 and 311.

[0051] A simple example of a possible set of non-linear functions is as follows:

$$\beta(s) = \begin{cases} 0 & H_n\{s\} < ThrHnLow \\ 1 & H_n\{s\} < ThrHnHigh \\ HnSlp * \{H_n(s) - ThrHnLow\} & otherwise \end{cases}$$

where $HnSlp = 1/(ThrHnHigh - ThrHnLow)$, and

$$\alpha(s) = \begin{cases} 0 & H_w\{s\} < ThrHwLow \\ 1 & H_w\{s\} < ThrHwHigh \\ HwSlp * \{H_w(s) - ThrHwLow\} & otherwise \end{cases}$$

where $HwSlp = 1/(ThrHwHigh - ThrHwLow)$. In a basic embodiment the thresholds $ThrHwHigh$, $ThrHwLow$, $ThrHnHigh$, $ThrHnLow$ are predetermined constants that can be set independently for each stage of the filter; more generally, the thresholds in one stage can be dependent on other stages, and these can be adaptive and responsive to image characteristics, as discussed further below.

[0052] In the example above, the coefficients are piecewise linear, being 0 below the low threshold and rising linearly to unity at the high threshold.

Consequently, for smaller values of H_n (below the low threshold value), $\beta=0$ and the output of the first stage will be the low-pass filtered signal L_n , while for values of H_n over the high threshold $\beta=1$ and the output of the first stage is the same as the input, $L(s)$. Similarly, $F(s)$ will transition between the low pass filter L_w and L_{pF} as magnitude of the high pass filter value increases. More generally, other functions than the piecewise linear example, such as those with smoother transitions (e.g., sigmoid), may be implemented using a look up table or other mechanisms.

[0053] The final stage of the process (207 in Figure 2) computes the desired gain $G(s)$ for a pixel s by nonlinear mapping of $F(s)$. Since the image F is an edge preserving low pass filter version of the image L , it carries information on the intensity of the pixels and its surrounding narrow and wide support. A gain lookup table ("GainLUT") can be used to implement a user predetermined non-linear function, thus:

$$G(s)=GainLUT(F(s))$$

[0054] The amount of gain in shadow regions as well as attenuation in highlight regions is determined by the mapping of F to the lookup table content. Other correction factors besides gain, such as chromaticity (color balance), can be similarly determined. Consequently, as noted above, there may be one or more correction factors, some of which will differ for the differing color channels. Thus, for example, pixel chromaticity adjustment can be employed to effect greater visualization of detail in the final image, in conjunction with, or separately from, pixel gain adjustment.

[0055] Figure 4 is an embodiment that incorporates one or more additional cascaded stages between the initial stage (the stage with the narrowest support window) and the last stage (the stage with the widest support window). The use of these successively larger neighborhoods about the pixel fills the gap between L_n and L_w with additional low-pass filter sections to obtain finer edge preserving transition by cascading additional sections. The width of these windows may be set in various ways. For example, as noted above, the narrow window could be set

at, say, about 5x5 pixels, with the width of the wide window dependent upon the image width. These widow sizes may be user determined, or in a more general case, they may be dependent on the content of the image. Some measures that may be used for this are discussed below.

[0056] In each section of the cascade, depicted in Figure 3 or 4 above, a weighting factor (for example β in the section furthest to left in Figure 4) controls the combination between the section input L and output from its low-pass filter version L_n . The weighting factor depends on its thresholds, $ThrHnLow$, $ThrHnHigh$, with $ThrHnLow \leq ThrHnHigh$. In the basic embodiment described above, these thresholds were preset. More generally, these thresholds, and the determination of the weighting factors in general, can be made adaptive and responsive to the characteristics of the image, including based on the detection of predetermined types of objects (e.g., faces) it in the image. In the following description the first section (with narrow support filter) is used as an example. For sections $n > 1$, the input to section n is the output of section $n-1$ and L , which is the input to the section filter.

[0057] When the high pass filter data (HPF), which is the difference between the input (L) and filtered data ($H_n = L - L_n$), is below the low threshold ($\beta = 0$), the output of the section, $L_pF = \beta * H_n + L_n$, coincides with the filtered data ($L_pF = L_n$). When the high pass filter data (HPF) is above the high threshold (that means $\beta = 1$), the output coincides with the section input ($L_pF = L$).

[0058] The low and the high thresholds may be related to H_n . Examples may include the minimum, maximum, mean, median, standard deviation or other statistical measures taken from a histogram of the whole image or within a sub-image block. For example, one embodiment can set the low and the high thresholds with respect to the minimum and the maximum of H_n , respectively, mathematically represented as:

$$ThrHnLow = k1 * \min(H_n), \text{ and}$$

$$ThrHnHigh = k2 * \max(H_n),$$

with, for example, $k_1=k_2=0.5$, so that the dynamic range of the blending process may be adapted to the image characteristics.

[0059] In another set of embodiments, the image statistics may be better expressed by moments of distribution. For example, in a normal distribution the statistics may be sufficiently expressed by the first two moments, namely the mean and the standard deviation (std). Using this approach, the thresholds may be set as:

$$ThrHnLow = \text{mean}(Hn) - k_1 * \text{std}(Hn), \text{ and}$$

$$ThrHnHigh = \text{mean}(Hn) + k_2 * \text{std}(Hn).$$

[0060] In addition, the thresholds may be used to adaptively control the contribution of each section. For example, by setting $ThrHnLow \leq ThrHnHigh = \min(Hn)$, the section is adaptively bypassed ($LpF=L$), since $Hn \geq ThrHnHigh$. Similarly, when $ThrHnLow = \max(Hn)$, the section uses the filtered data ($LpF=Ln$).

[0061] The mean and standard deviation of Hn may be extracted for the whole image, such as from a result of a preprocessing stage. In another embodiment, an estimate of these values may be taken either from a preview image (at a smaller scale), or a previous image in a sequence of images. Another alternative is to use local mean and standard deviation extracted from a sub-image block of pixels in the neighborhood of the current pixel.

[0062] The general embodiment of FIGS. 3 and 4 can include two or more cascaded stages. The particular number of active sections in the cascade can be adaptively selected using measurements from the whole image or from sub image block, so that a number sections ranging from one to all of the available sections are applied to the image. In the exemplary embodiments, each section contains a linear filter whose window support length increases with the section number; that is, again referring to Figure 4, the LPF of section $n+1$ has larger support than LPF of section n . Since a narrow support filter can track changes more locally than a

filter with wider support, the local contrast may be controlled by selectively using various sections in cascade.

[0063] In addition to detecting predetermined types of objects, various spatial measurements may also be used to characterize the image content. The location(s) of a predetermined type of object and/or these spatial measurements (which can be taken together with a user preference for the amount of local contrast needed) can be used to adaptively determine which and how many sections will be used. Examples of such spatial measurements may include, for example:

1) The local magnitude of one or more of the high-pass filters (e.g. H_n) and its sign may help to measure local edges and their direction (rising or falling edge) within the image or some sub-image block. In this case measurements are taken locally with relation to the support of the section filter.

2) Spatial frequencies as obtained from the image or sub image block, by frequency domain tools such as Discrete Cosine Transforms (DCT). A spatial frequency is detected in the image or sub image block when its coefficient is above a given threshold.

[0064] Figures 8A through 8C illustrate an example of how image quality can be improved by use of content-based DRC as introduced above. Specifically, Figure 8A shows an example of an image 800A with no dynamic range correction applied. As can be seen, the face area 801A in image 800A is hardly recognizable; it is too dark, in contrast to the sky and the snow bank in the background, due to the camera that acquired the image 800A having insufficient dynamic range.

[0065] Histogram 802A indicates the distribution of luminance (brightness) levels for pixels in the face area 801A. It can be seen that the histogram is concentrated at luminance values close to zero (black level).

[0066] Figure 8B shows an example of the same image after dynamic range correction is applied without knowledge of the content of the image; that is,

dynamic range correction is applied uniformly across the image. While there is a mild improvement to the brightness of the face area 801B in image 800B relative to image 800A, it is still not optimal, since the dynamic range correction algorithm has no information about the importance of the face.

[0067] Histogram 802B indicates the distribution of luminance levels for pixels in the face area 801B in Figure 8B. It can be seen that the peak of histogram 802B has moved somewhat to the right, relative to histogram 802A, however, histogram 802B is still skewed toward the left (low luminance values). This reflects the fact that face area 801B in Figure 8B is brighter than face area 801A in Figure 8A, yet it is still too dark in the opinion of some viewers.

[0068] Figure 8C shows an example of the same image after dynamic range correction is selectively applied based on knowledge of the content of the image (*i.e.*, based on the presence and location of the face area 801C in this example), according to the technique introduced here. As can be seen, the face area 801C in image 800C is much brighter than in the previous two images.

[0069] Histogram 802C indicates the distribution of luminance levels for pixels in the face area 801C in Figure 8C. It can be seen that the peak of histogram 802C has been shifted further to the right, relative to histograms 802A and 802B, such that it is much more evenly distributed across the range of luminance levels. This reflects the more optimal brightness level of face area 801C.

[0070] Figure 5 shows a general block diagram of the IPU 111, according to one embodiment. As illustrated, the IPU 111 includes a processor 51, input interface circuit 55, memory management unit 57, output interface circuit 59, interface circuits 61 and calculations circuits 63. The processor 51, which may be a general-purpose processor or specially designed to perform the tasks described herein, performs calculations on the image data and controls operation of the image processing system in which it is included. In some embodiments this may be in response to software or firmware stored in a memory. Input digital image

data are received over lines 41 by interface circuit 55 through input contacts on the IPU 111, and are then communicated with other system components by connection through memory management unit 57. Image data are output through interface circuit 59 to lines 21 and 25 (e.g., to a memory) that are connected to output contacts on IPU 111. Interface circuits 61 communicate between the lines 17, 45 and 50 and the processor 51 and memory management unit 57.

[0071] Circuits 63 of Figure 5, which are also connected with the processor 51 and memory management unit 57, are optionally included to do at least some of the calculations necessary to carry out the data processing that is performed by the image processing system. The processor 51 may make all the calculations under control, but the use of dedicated circuits 63 to at least make the most repetitive and/or complex calculations may be preferred.

[0072] The techniques introduced above can be implemented by programmable circuitry programmed/configured by software and/or firmware, or entirely by special-purpose circuitry, or by a combination of such forms. Such special-purpose circuitry (if any) can be in the form of, for example, one or more application-specific integrated circuits (ASICs), programmable logic devices (PLDs), field-programmable gate arrays (FPGAs), etc.

[0073] Software or firmware to implement the techniques introduced here may be stored on a machine-readable storage medium and may be executed by one or more general-purpose or special-purpose programmable microprocessors. A "machine-readable medium", as the term is used herein, includes any mechanism that can store information in a form accessible by a machine (a machine may be, for example, a computer, network device, cellular phone, personal digital assistant (PDA), manufacturing tool, any device with one or more processors, etc.). For example, a machine-accessible medium includes recordable/non-recordable media (e.g., read-only memory (ROM); random access memory (RAM); magnetic disk storage media; optical storage media; flash memory devices; etc.), etc.

[0074] The term "logic", as used herein, can include, for example, special-purpose hardwired circuitry, software and/or firmware in conjunction with programmable circuitry, or a combination thereof.

[0075] References in this specification to "an embodiment", "one embodiment", or the like, mean that the particular feature, structure or characteristic being described is included in at least one embodiment of the present invention. Occurrences of such phrases in this specification do not necessarily all refer to the same embodiment. On the other hand, different embodiments may not be mutually exclusive either.

[0076] Although the present invention has been described with reference to specific exemplary embodiments, it will be recognized that the invention is not limited to the embodiments described, but can be practiced with modification and alteration within the spirit and scope of the appended claims. Accordingly, the specification and drawings are to be regarded in an illustrative sense rather than a restrictive sense.

CLAIMS

What is claimed is:

1. A method comprising:
determining whether a first portion of digital image data represents a physical object of a predetermined type;
determining a correction to apply to the first portion of the digital image data, based on a determination that the first portion of the digital image data represents a physical object of the predetermined type, wherein the determined correction is matched to the predetermined type; and
applying the determined correction to the first portion of the digital image data to enhance a visual characteristic of the first portion of the digital image data.
2. A method as recited in claim 1, wherein the correction comprises a dynamic range correction.
3. A method as recited in claim 1, wherein determining the correction comprises determining an amount of a parameter to apply to the first portion of the digital image data.
4. A method as recited in claim 3, wherein the parameter is a gain.
5. A method as recited in claim 1, wherein applying the determined amount of correction comprises applying a first amount of the correction to the first portion of the digital image data, wherein the method further comprises applying a second amount of the correction to a second portion of the digital image data, wherein the first amount differs from the second amount, and wherein the first amount corresponds to a physical object of the predetermined type.
6. A method as recited in claim 1, wherein applying the determined correction to the first portion of the digital image data comprises applying a first amount of a parameter to the first portion to enhance the visual characteristic, wherein the first amount of the parameter is different from a second amount of the

parameter applied to a second portion of the digital image data, resulting in a first portion of a digital image that corresponds to the first portion of digital image data being brighter than if the second amount of the parameter were applied to both the first portion and the second portion of the digital image data.

7. A method as recited in claim 1, wherein the predetermined type of physical object represents facial attributes.

8. A method as recited in claim 1, further comprising:
determining that a second portion of the digital image data does not represent a physical object of the predetermined type; and
determining a different amount of gain to apply to the second portion than that determined for the first portion.

9. A method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
determining the amount of gain so as to maintain local contrast of the first portion of the digital image data.

10. A method as recited in claim 1, wherein the first portion of the digital image data includes a plurality of pixels, and wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
determining a first intermediate value based on a measure of image strength of a first pixel within the first portion of the digital image data;
determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel in the digital image data;
and
using the first intermediate value and the second intermediate value to determine the amount of gain.

11. A method as recited in claim 10, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

12. A method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
selecting a value from a gain data structure according to whether the first portion of the digital image data represents a physical object of the predetermined type.

13. A method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
determining a first gain based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and
wherein applying the determined amount of gain comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

14. A method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
modifying a gain map based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and
wherein applying the determined amount of gain comprises obtaining the amount of gain from the gain map.

15. A method as recited in claim 1, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the first portion of the digital image data

represents a physical object of the predetermined type.

16. A method comprising:

making a determination, in a digital image processing device, that a first group of adjacent pixels in a digital image represents a face;

determining, in the digital image processing device, a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a face, wherein said determining includes determining a different amount of gain for the first group of pixels than that determined for a second group of pixels which do not represent a face, wherein said determining further includes determining the amount of gain for the first group of adjacent pixels so as to maintain local contrast of the first group of adjacent pixels, and wherein said determining further includes

determining a first intermediate value based on a measure of image strength of a first pixel of the first group of adjacent pixels;

determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel; and

using the first intermediate value and the second intermediate value to determine the type or amount of gain;

applying the determined type or amount of dynamic range correction to the at least one pixel in the first group of adjacent pixels;

determining that a second group of pixels in the digital image does not represent a face; and

determining a different type or amount of dynamic range correction to apply to the second group of pixels than that determined for the first group.

17. A method as recited in claim 16, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

18. A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

selecting a value from a gain data structure according to whether the at least one pixel is part of a portion of image data that represents a physical object of the predetermined type.

19. A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

determining a first gain based on the determination that the at least one pixel represents a physical object of the predetermined type; and

wherein applying the determined type or amount of dynamic range correction comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

20. A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

modifying a gain map based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined type or amount of dynamic range correction comprises obtaining the amount of gain from the gain map.

21. A method as recited in claim 16, wherein determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels comprises:

selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the at least one pixel is part of a portion

of image data that represents a physical object of the predetermined type.

22. An image processing unit comprising:

an object detection unit to receive an intensity value for each of a plurality of pixels in a set of digital image data and to determine that a first portion of the set of digital image data represents a physical object of a predetermined type; and

a correction unit to determine a type or amount of correction to apply to the first portion of the set of digital image data, based on an output of the object detection unit, and to apply the determined type or amount of correction to the first portion of the set of digital image data, and to apply a different type or amount of correction to a second portion of the set of digital image data which does not represent a physical object of the predetermined type.

23. An image processing unit as recited in claim 22, wherein the correction is a dynamic range correction.

24. An image processing unit as recited in claim 23, wherein the object detection unit is configured to detect faces.

25. An image processing unit as recited in claim 22, wherein the correction unit further is to:

determine that a second portion of the set of digital image data does not represent a physical object of the predetermined type; and

determine a different type or amount of correction to apply to the second portion than that determined for the first portion.

26. An image processing unit as recited in claim 22, wherein the correction unit comprises:

a filter unit which receives the intensity values of the plurality of pixels and which includes a plurality of cascaded filter stages, wherein at least one filter stage of the plurality of cascaded filter stages operates based on a larger pixel neighborhood than a preceding filter stage of the plurality of cascaded filter stages,

and wherein the image processing unit determines a number of stages of the filter unit that are active based on the set of digital image data;

wherein the correction unit corrects intensity values of the plurality of pixels based on outputs of the filter unit.

27. An image processing unit as recited in claim 22, wherein the correction unit determines the amount of gain to apply to the first portion of the digital image data by determining the amount of gain so as to maintain local contrast of the first portion of the digital image data.

28. An image processing unit as recited in claim 22, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
selecting a value from a gain data structure according to whether the first portion of the digital image data represents a physical object of the predetermined type.

29. An image processing unit as recited in claim 22, wherein the first portion of the digital image data includes a plurality of pixels, and wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first intermediate value based on a measure of image strength of a first pixel within the first portion of the digital image data;

determining a second intermediate value based on a measure of image strength of a plurality of pixels surrounding the first pixel in the digital image data;
and

using the first intermediate value and the second intermediate value to determine the amount of gain.

30. An image processing unit as recited in claim 29, wherein determining the first intermediate value and determining the second intermediate value each separately comprise applying a low pass filter function.

31. An image processing unit as recited in claim 22, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:
modifying a gain data structure based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined amount of gain comprises obtaining the amount of gain from the gain data structure.

32. An image processing unit as recited in claim 22, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

determining a first gain based on the determination that the first portion of the digital image data represents a physical object of the predetermined type; and

wherein applying the determined amount of gain comprises applying the first gain to a pixel value from the first portion of the digital image data and a second gain, wherein the second gain is independent of the determination that the first portion of the digital image data represents a physical object of the predetermined type.

33. An image processing unit as recited in claim 22, wherein determining the amount of gain to apply to the first portion of the digital image data comprises:

selecting one of a plurality of data structures of gain values, from which to obtain a gain value, according to whether the first portion of the digital image data represents a physical object of the predetermined type.

34. An apparatus comprising:

means for making a determination that a first group of adjacent pixels in a digital image represents a physical object of a predetermined type;

means for determining a type or amount of dynamic range correction to apply to at least one pixel in the first group of adjacent pixels based on the determination that the first group of adjacent pixels represents a physical object of the predetermined type; and

means for applying the determined type or amount of dynamic range correction to the at least one pixel in the first group of adjacent pixels.

ABSTRACT OF THE DISCLOSURE

[0077] Disclosed are method and a corresponding apparatus, where the method according to one embodiment includes making a determination that a first portion of digital image data represents a physical object of a predetermined type, determining an amount of a parameter, such as a gain, to apply to the first portion of the digital image data, based on the determination that the first portion of the digital image data represents a physical object of the predetermined type, and applying the determined amount of the parameter to the first portion of the digital image data. The method may be part of a dynamic range correction operation.

74095-8094.US01/LEGAL19681300.1

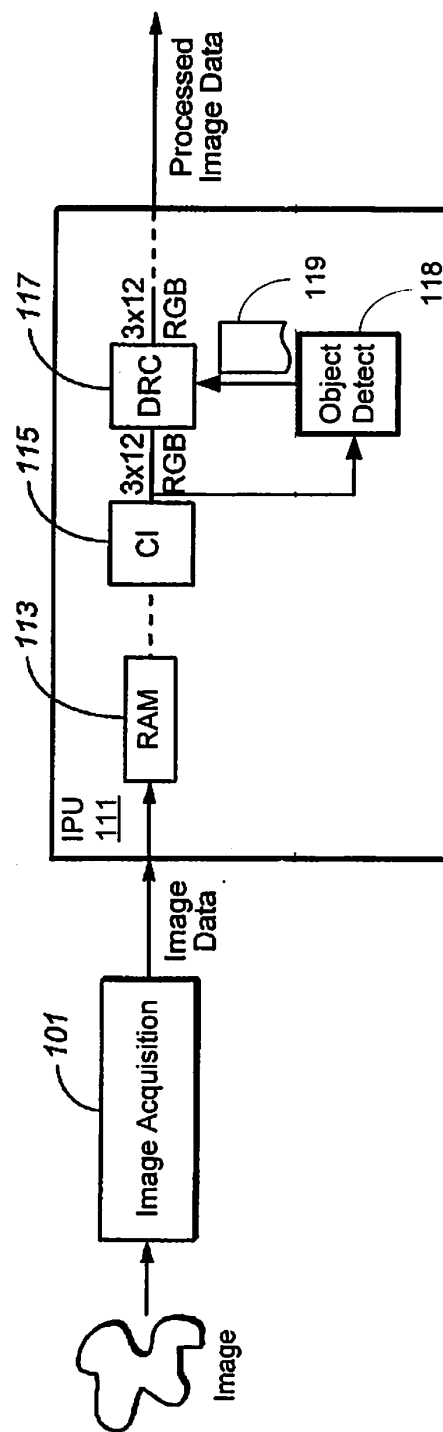


Fig. 1

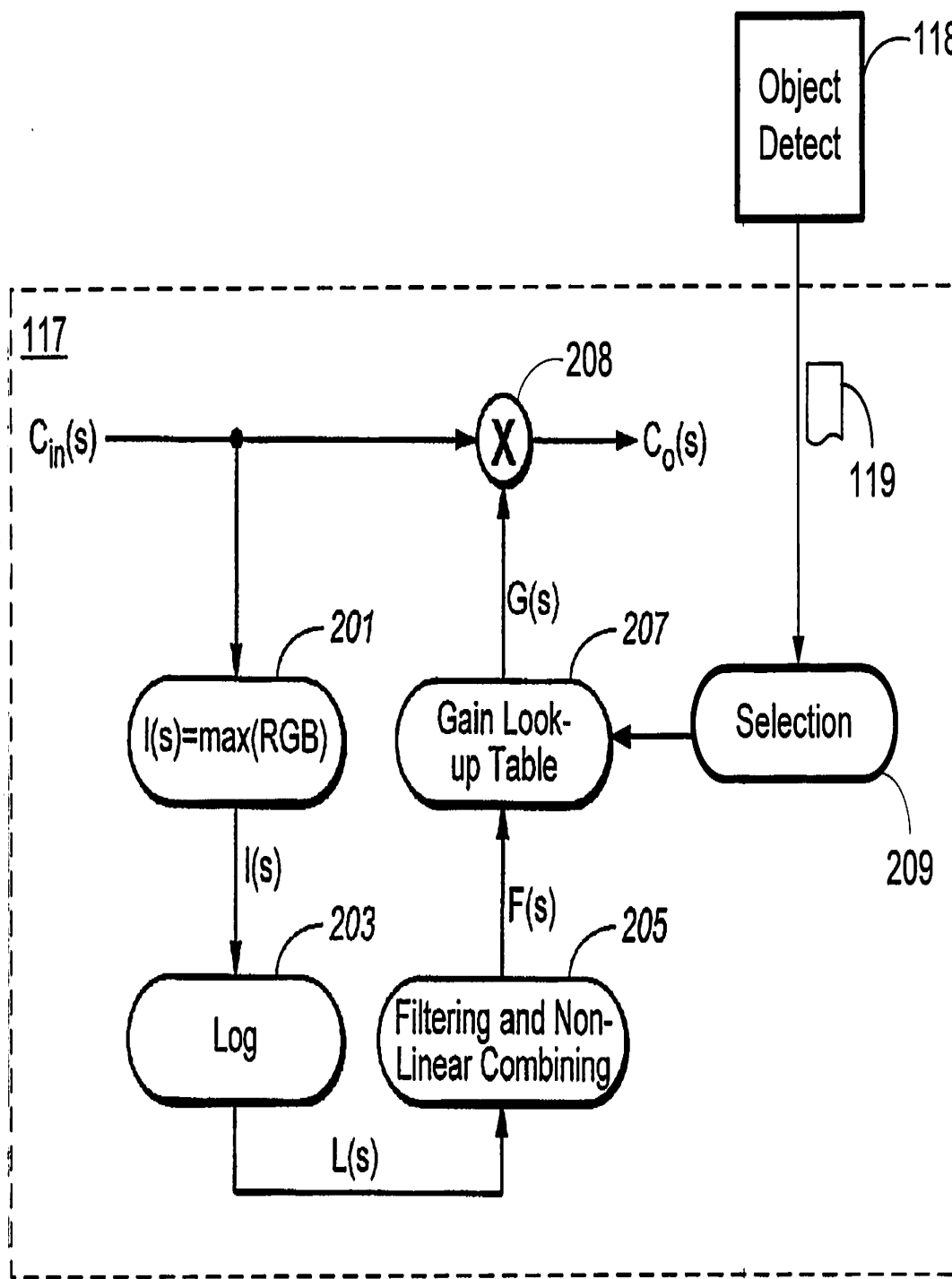


FIG. 2A

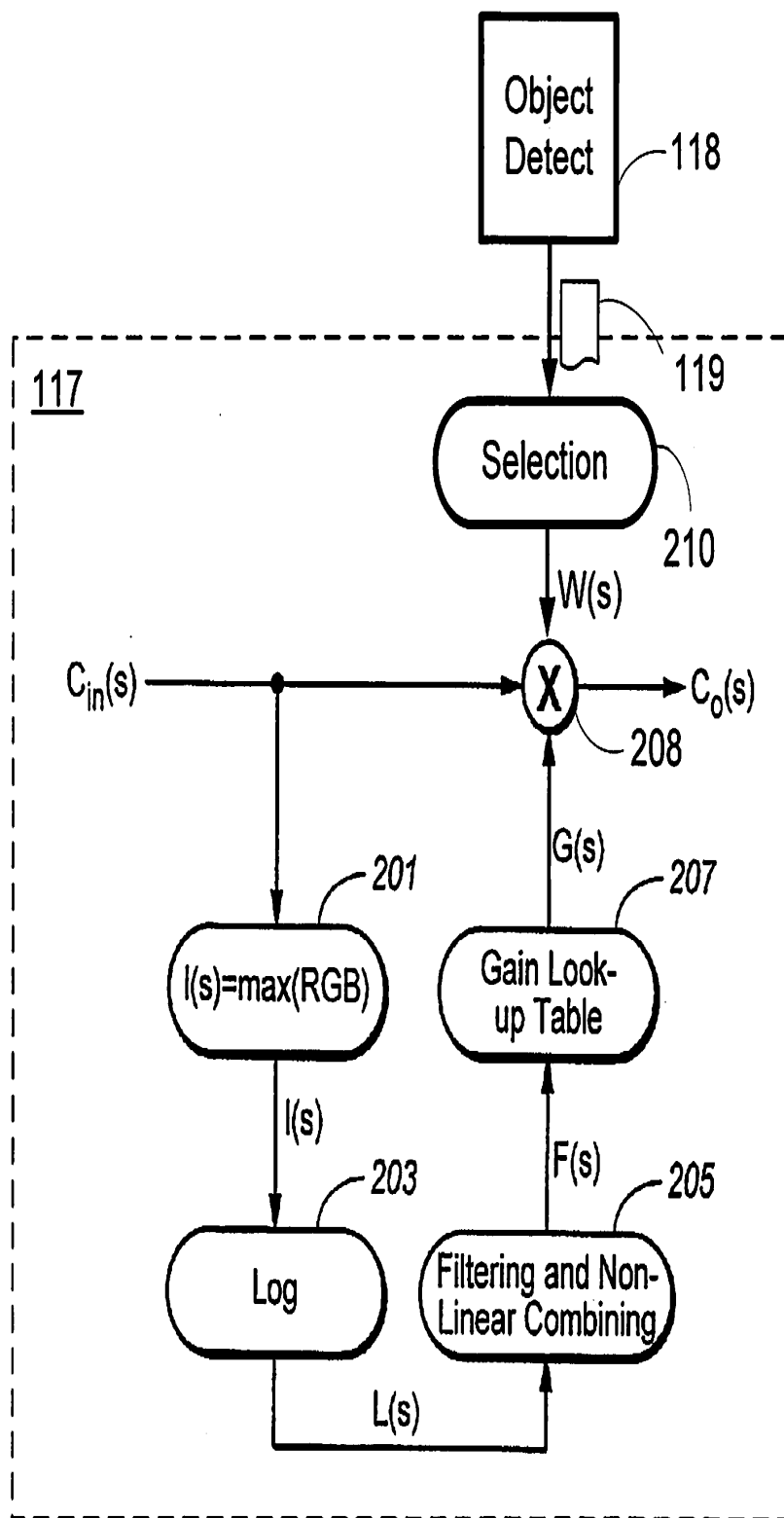


FIG. 2B

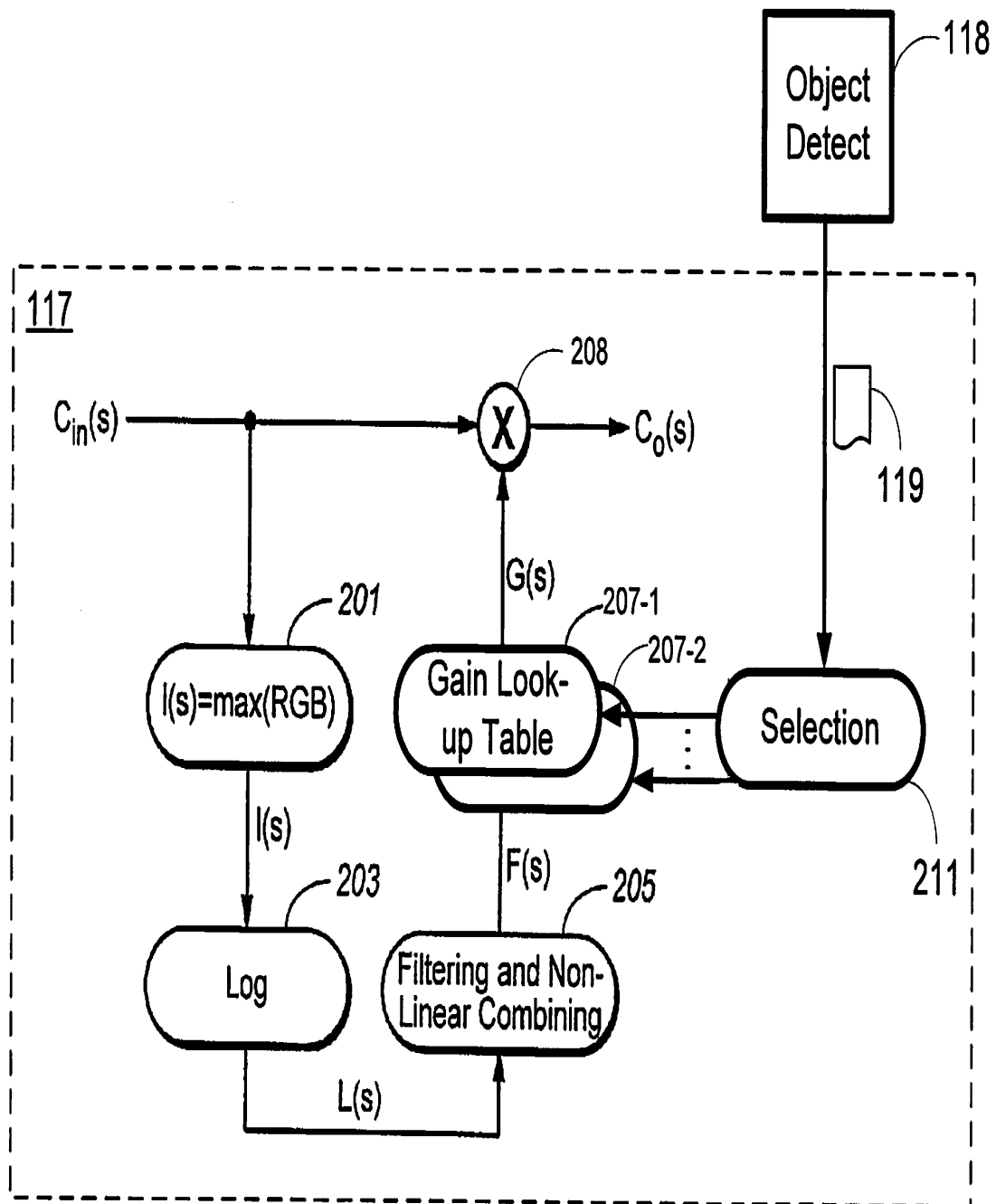


FIG. 2C

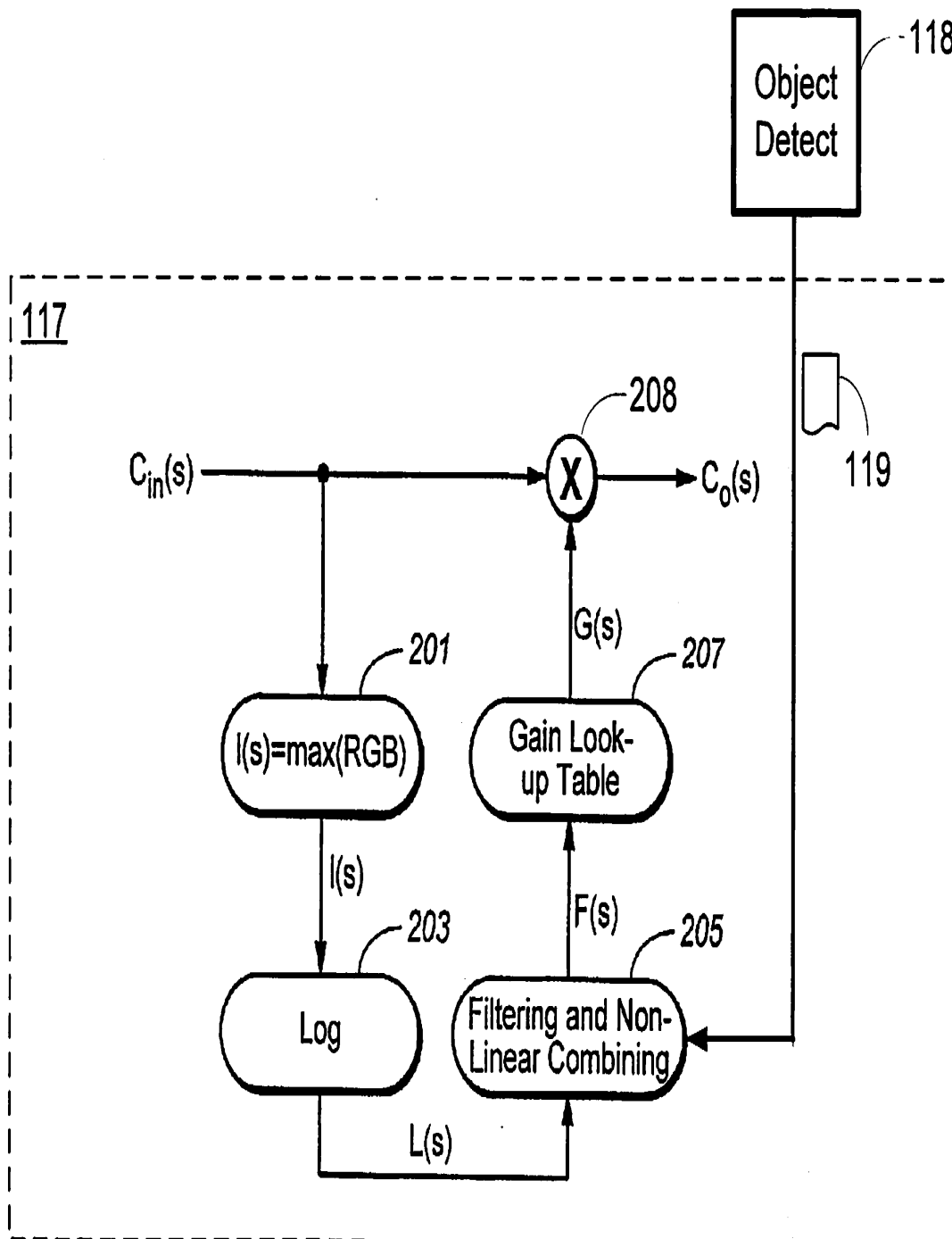


FIG. 2D

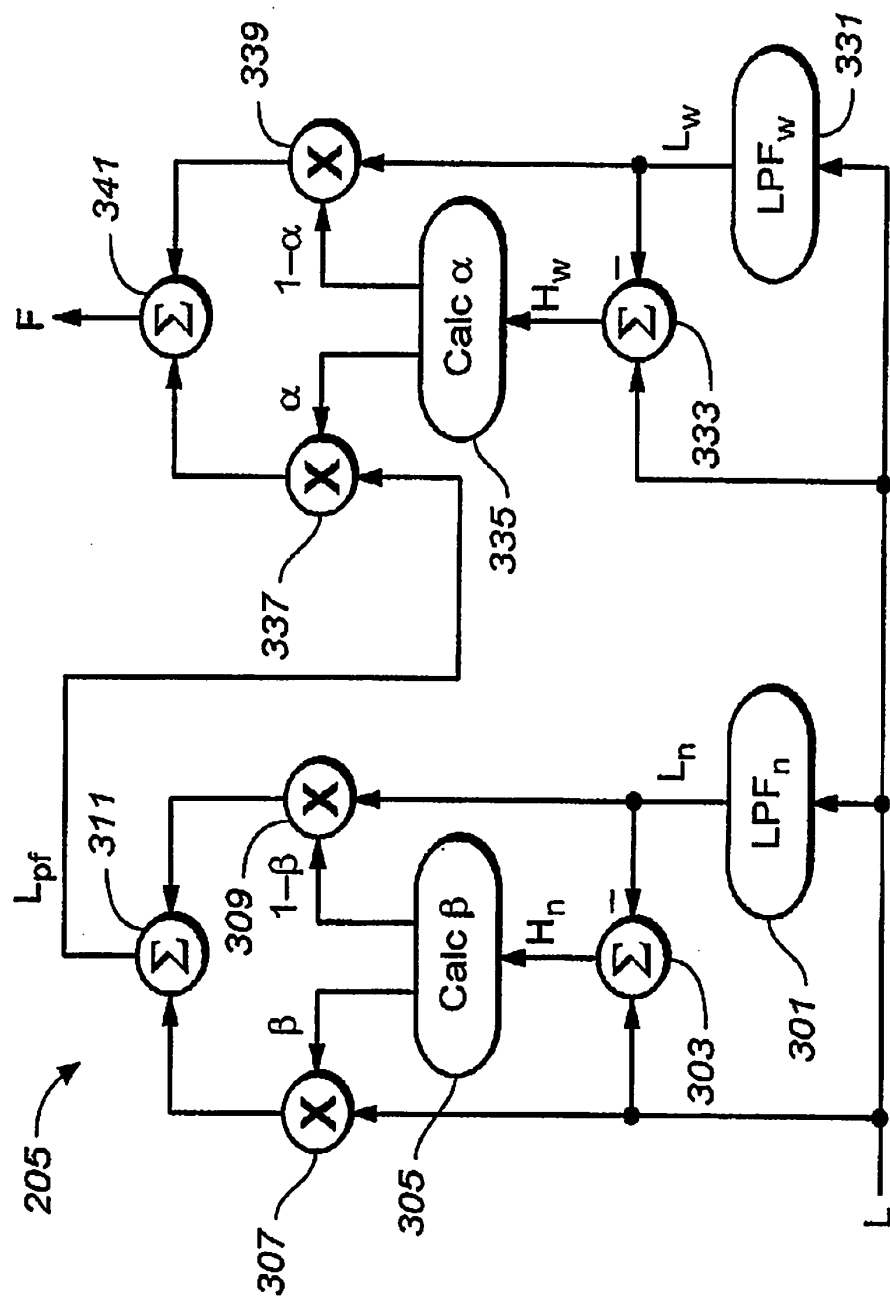


FIG. 3

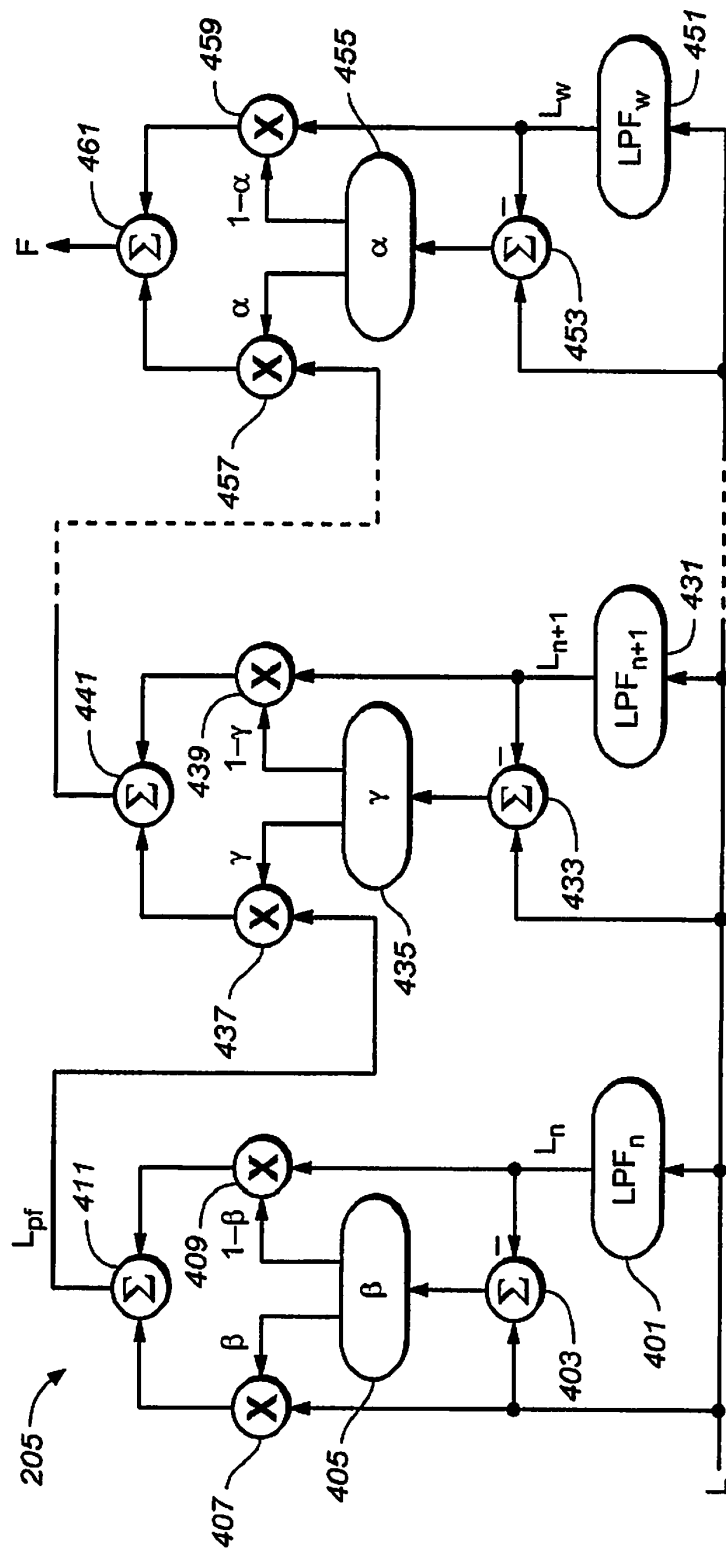


FIG. 4

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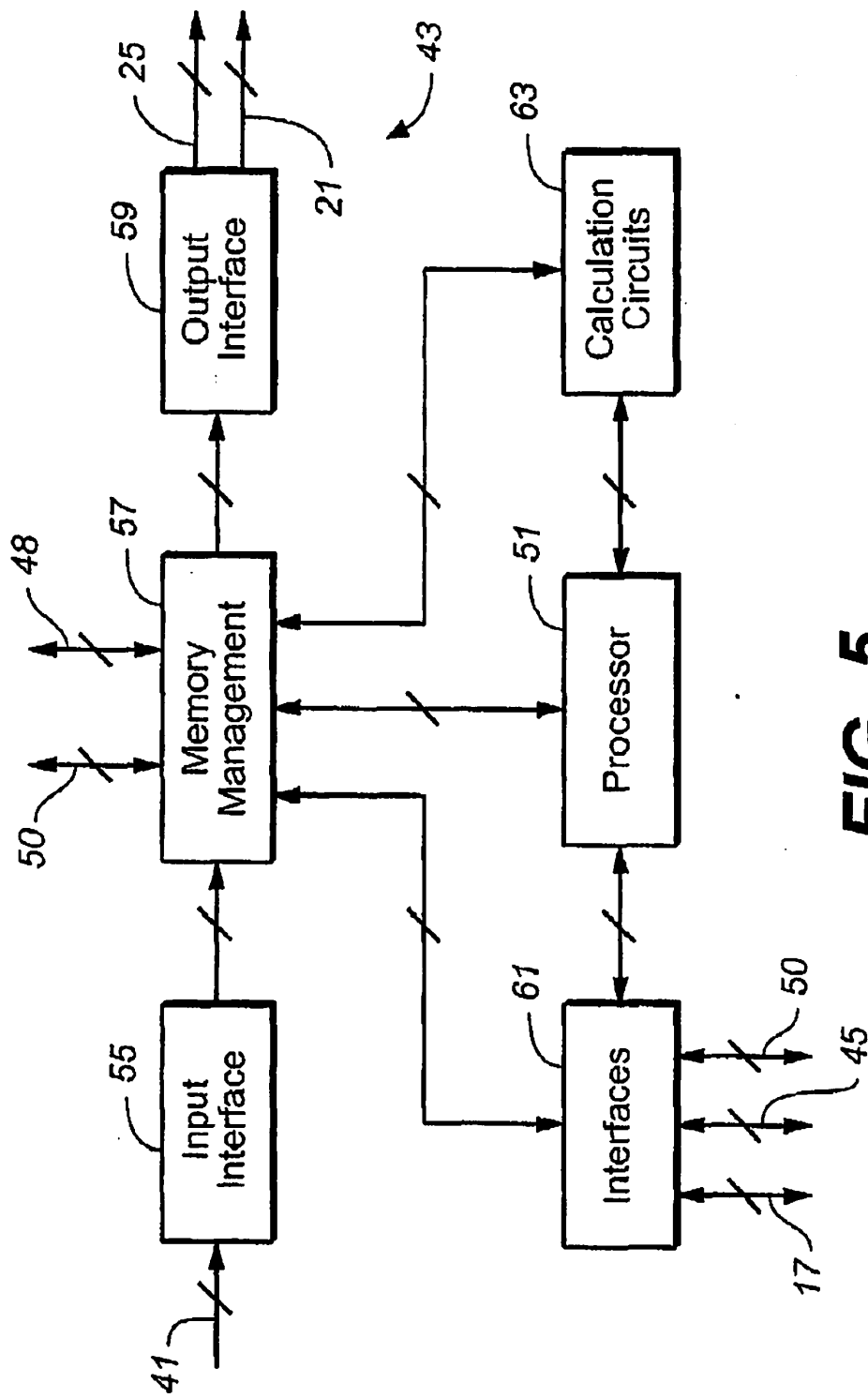


FIG. 5

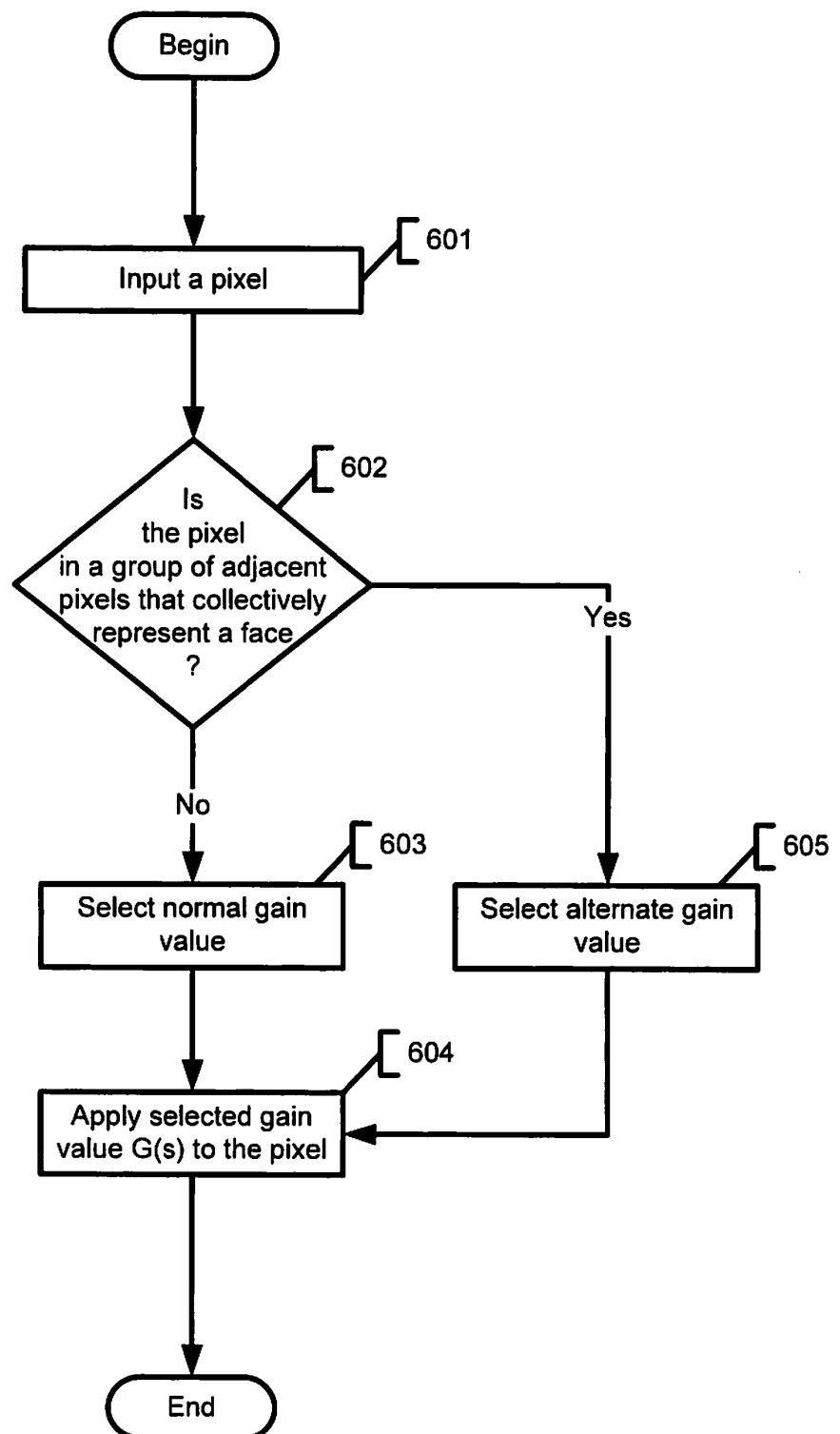


Fig. 6

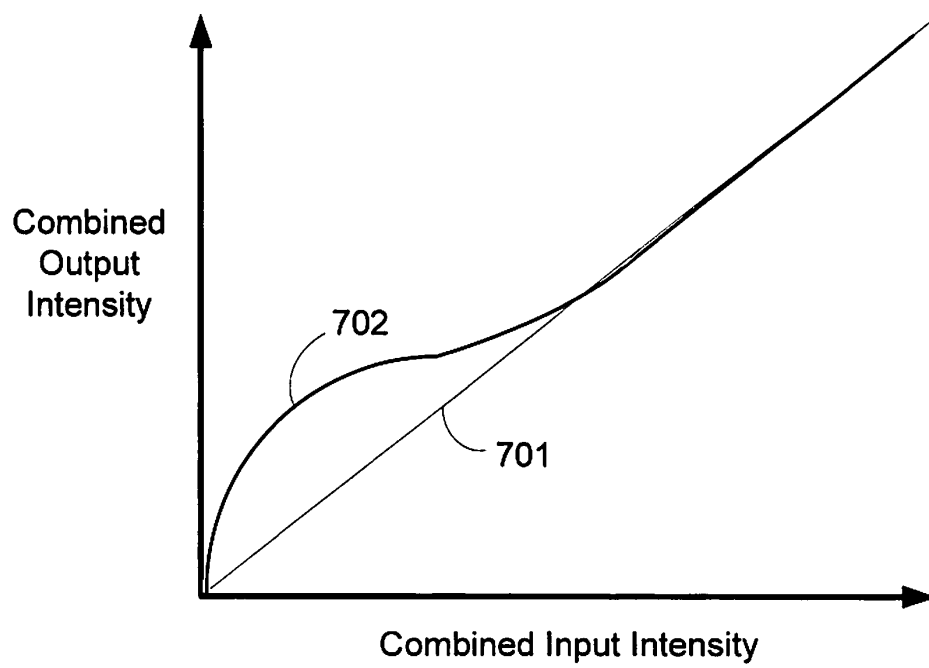


Fig. 7

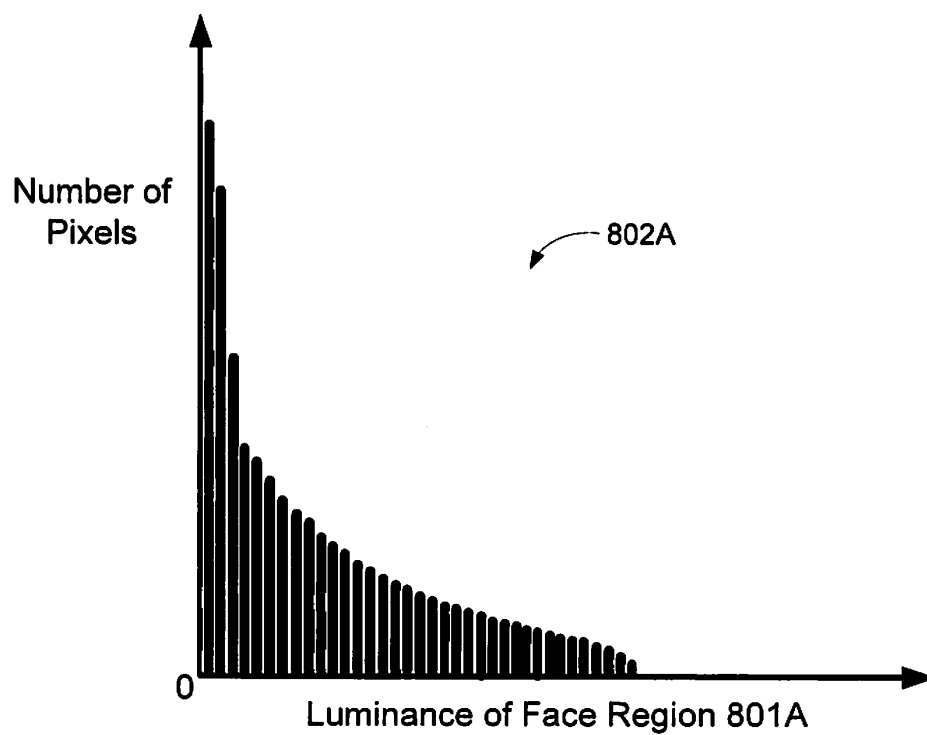
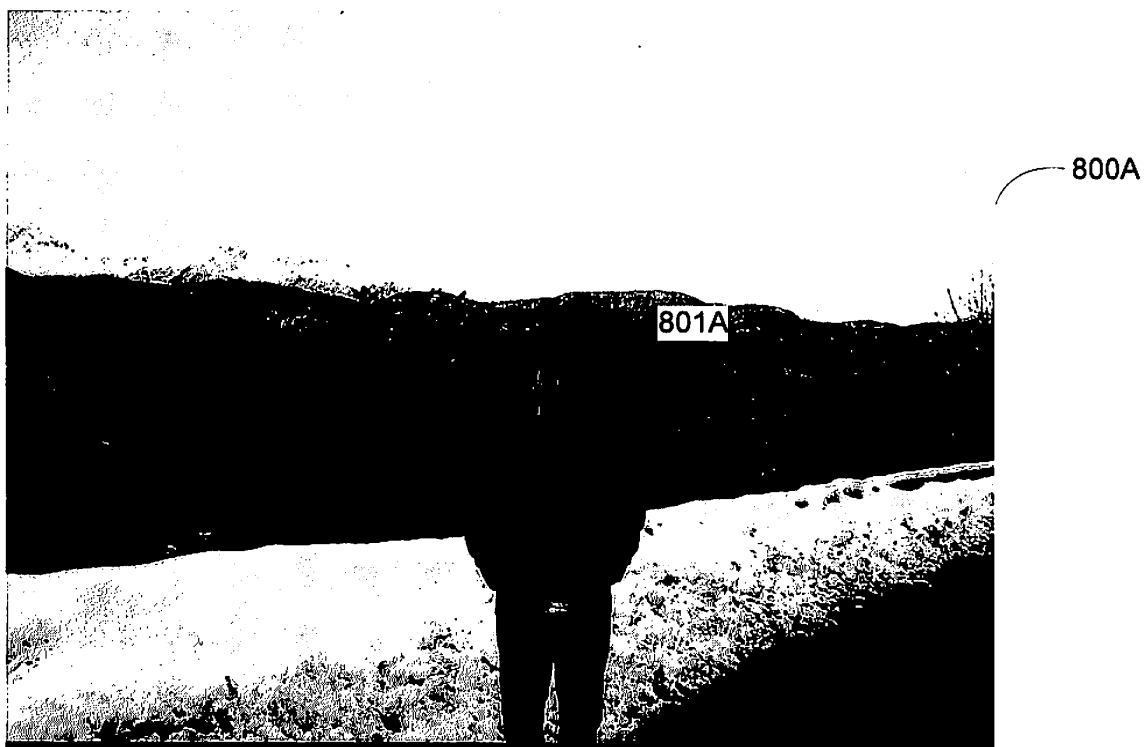


Fig. 8A

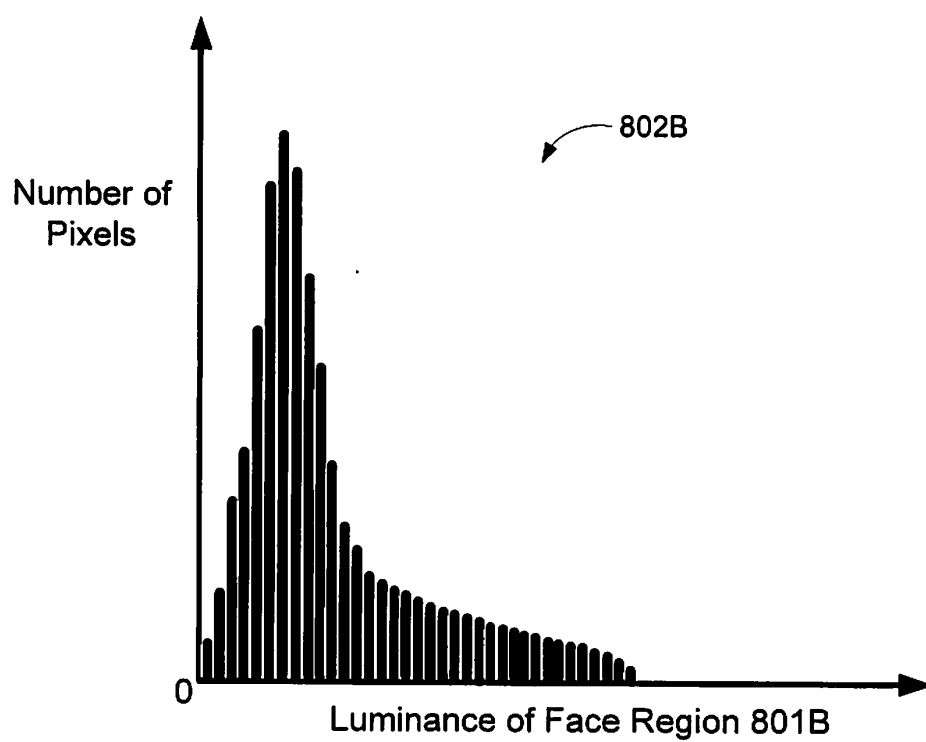
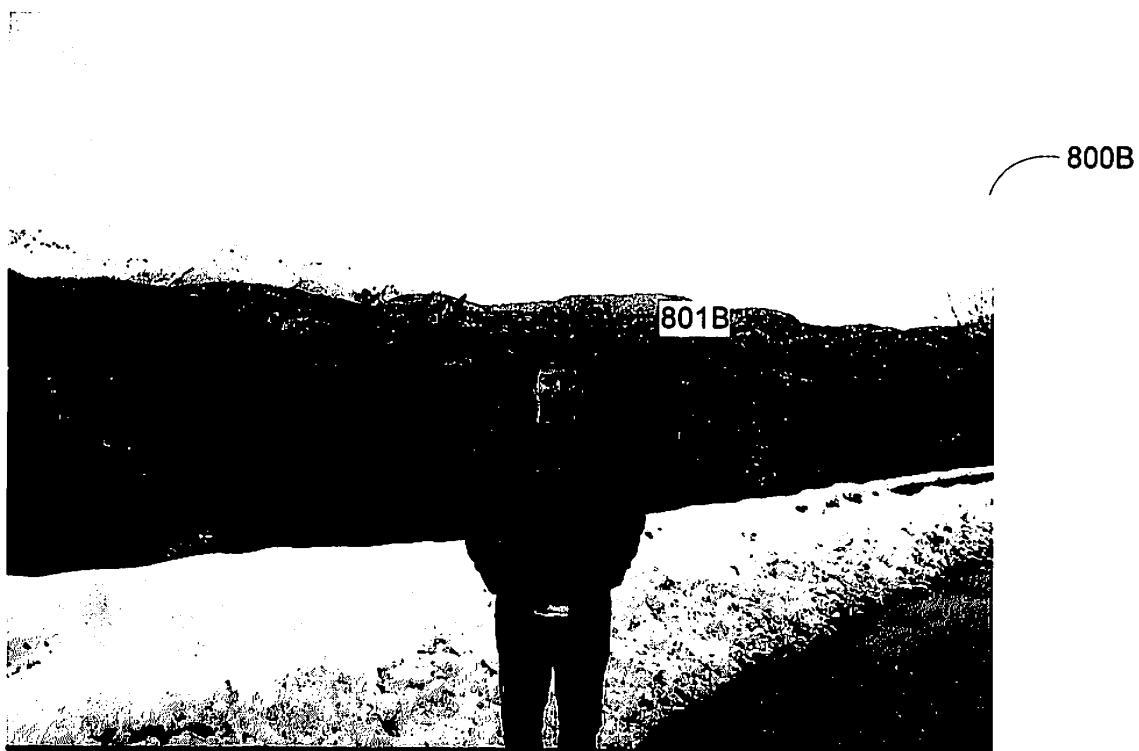


Fig. 8B

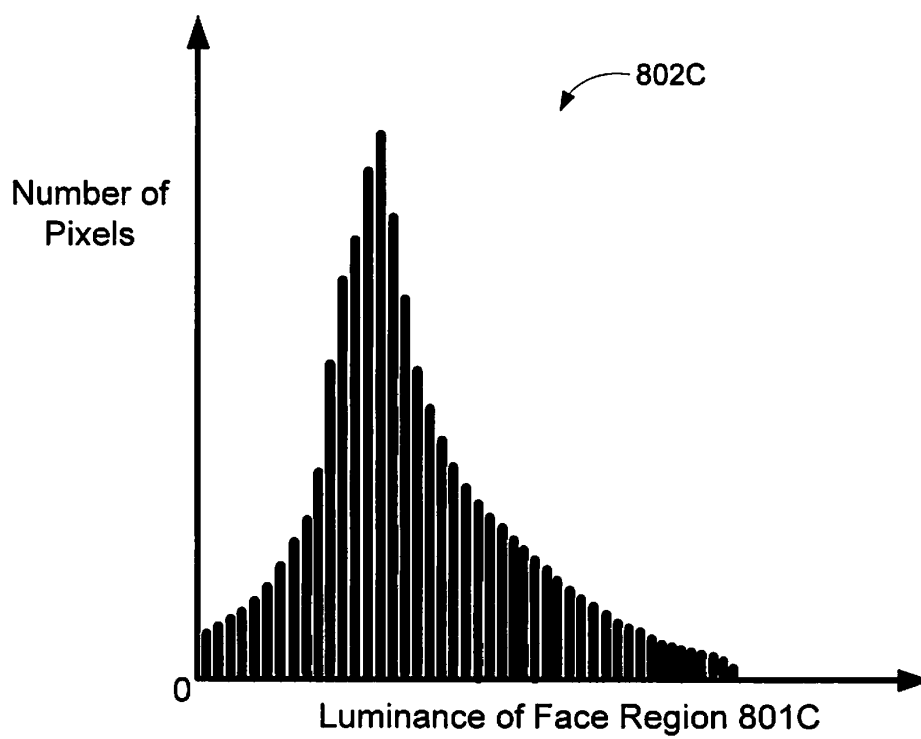


Fig. 8C

Docket No.: 74095-8094.US01
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Erez GALIL

Application No.: Not Yet Assigned

Confirmation No.: N/A

Filed: Concurrently Herewith

Art Unit: N/A

For: DYNAMIC RANGE CORRECTION
BASED ON IMAGE CONTENT

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. §§1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

A summary/abstract translation of the non-English language references is enclosed.

In accordance with 37 C.F.R. §1.98(a)(2)(ii), Applicant has not submitted copies of U.S. patents and U.S. patent applications. Applicant submits herewith copies of foreign patents and non-patent literature in accordance with 37 C.F.R. §1.98(a)(2).

This Information Disclosure Statement is not to be construed as a representation that: (i) a search has been made; (ii) additional information that may be material to the

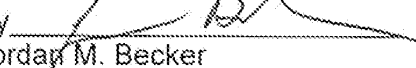
examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the cited information is, or is considered to be, material to patentability. In addition, applicant does not admit that any enclosed item of information constitutes prior art to the subject invention and specifically reserves the right to demonstrate that any such reference is not prior art.

It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. §1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-2207, under Order No. 74095-8094.US01.

Dated: 12/6/10

Respectfully submitted,

By 
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(650) 838-4350 (Fax)
Attorney for Applicant

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	Not Yet Assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Erez Galil
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	1	of	3	Attorney Docket Number	74095-8094.US01

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AA	US-4,466,018	08-14-1984	Soneda et al.	
	AB	US-5,012,333	04-30-1991	Lee et al.	
	AC	US-6,788,822	09-07-2004	Zhang et al.	
	AD	US-6,807,299	10-19-2004	Sobol	
	AE	US-6,822,762	11-23-2004	Moroney et al.	
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	AG	US-6,982,811	01-03-2006	Sato	
	AH	US-6,975,418	12-13-2006	Ohta et al.	
	AI	US-7,088,388	08-08-2006	MacLean et al.	
	AJ	US-7,158,686	01-02-2007	Gindele	
	AK	US-7,321,112	01-22-2008	Stam et al.	
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	AN	US-7,580,566	08-25-2009	Fukuda et al.	
	AO	US-7,650,045	01-19-2010	Yano	
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	AQ	US-20030038957	02-27-2003	Sharman	
	AR	US-20040150732	08-06-2004	Yamanaka	
	AS	US-20040227978	11-18-2004	Enomoto	

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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				
	BA	JP-2006018739 (English Abstract)	01-19-2006	Canon Inc.		
	BB	JP-2007325145 English Abstract)	12-13-2007	Fujifilm Corp		

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				Filing Date	Concurrently Herewith
				First Named Inventor	Erez Galil
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	2	of	3	Attorney Docket Number	74095-8094.US01

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Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	AT	US-20060062562	03-23-2006	Utagawa	
	AU	US-20050265626-A1	12-01-2005	Endo et al.	
	AV	US-20070147701-A1	06-28-2007	Tanaka	
	AW	US-20080291287-A1	11-27-2008	Dvir	
	AX	US-20080292206-A1	11-27-2008	Dvir	
	AY	US-20090161964-A1	06-25-2009	Tzur et al.	
	AZ	US-20090179998-A1	07-16-2009	Steinberg et al.	
	AA1	US-20090220148-A1	09-03-2009	Levy et al.	
	AB1	US-20090290807-A1	11-26-2009	Marchesotti	
	AC1	US-20100014775-A1	01-21-2010	Ikeda	
	AD1	US-20100034458-A1	02-11-2010	Tada	
	AE1	US-20100079617-A1	04-01-2010	Kosaka	

FOREIGN PATENT DOCUMENTS						
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		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)			Application Number	Not Yet Assigned	
			Filing Date	Concurrently Herewith	
			First Named Inventor	Erez Gall	
			Art Unit	N/A	
			Examiner Name	Not Yet Assigned	
Sheet	3	of	3	Attorney Docket Number	74095-8094.US01

NON PATENT LITERATURE DOCUMENTS			
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	CA	Boult, "Correcting Chromatic Aberrations Using Image Warping," <i>Center for Research in Intelligent Systems, Columbia University, Department of Computer Science</i> , 1992, 15 pages.	
	CB	Boult, "Local Image Reconstruction and Sub-Pixel Restoration Algorithms," <i>Graphical Models and Image Processing</i> , Vol. 55(1), January 1993, pp. 1-12.	
	CC	Choudhury, et al., "The Trilateral Filter for High Contrast Images and Meshes," <i>Eurographics Symposium on Rendering</i> , 2003, pp. 1-11.	
	CD	Duran, et al., "Fast Bilateral Filtering for the Display of High-Dynamic Range Images," <i>ACM Transactions on Graphics, Special Issue on Proc. of ACM Sig-Graph</i> , 2002, San Antonio, Texas, Vol. 21(3), pp. 257-266.	
	CE	Fattal, et al., "Gradient Domain High Dynamic Range Compression," <i>ACM Transactions on Graphics, Special Issue on Proc. of ACM Sign-Graph</i> , 2002, San Antonio, Texas Vol. 21(3), pp. 249-256.	
	CF	Gilboa, et al., "Complex Diffusion Processes for Image Filtering," <i>Proc. Conf. Scale-Space</i> , 2001, pp. 299-307.	
	CG	Perona, et al., "Scale-Space and Edge Detection Using Anisotropic Diffusion," <i>University of California Berkeley</i> , December 20, 1988, pages 1-30.	
	CH	Tomasl, et al., "Bilateral Filtering of Gray and Color Images," <i>Proc. IEEE Intl. Conference on Computer Vision</i> , 1998, pp. 839-846.	
	CI	Wong, "Image Enhancement by Edge-Preserving Filtering," <i>First IEEE International Conference on Imaging Processing</i> , Austin, Texas, November 13-16, 1994, 6 pages.	
	CJ	Yamashita, et al., "Contrast-Gain-Based Visual Tone Mapping for Digital Photo Prints," <i>Journal of Imaging Science and Technology</i> , Vol. 50(5), pp. 458-468 (2006).	
	CK	Co-pending U.S. Patent Application Number 11/752,797 filed May 23, 2007.	

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74095-8094.US01/LEGAL19721924.1

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT		
First Named Inventor/Applicant Name:		Erez Galil		
Filer:		Jordan Michael Becker/Crystal Fong		
Attorney Docket Number:		74095-8094.US01		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	330	330
Utility Search Fee	1111	1	540	540
Utility Examination Fee	1311	1	220	220
Pages:				
Claims:				
Claims in excess of 20	1202	14	52	728
Independent claims in excess of 3	1201	1	220	220
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2038

Electronic Acknowledgement Receipt	
EFS ID:	8977102
Application Number:	12961400
International Application Number:	
Confirmation Number:	9077
Title of Invention:	DYNAMIC RANGE CORRECTION BASED ON IMAGE CONTENT
First Named Inventor/Applicant Name:	Erez Galil
Customer Number:	97848
Filer:	Jordan Michael Becker/Crystal Fong
Filer Authorized By:	Jordan Michael Becker
Attorney Docket Number:	74095-8094.US01
Receipt Date:	06-DEC-2010
Filing Date:	
Time Stamp:	19:57:03
Application Type:	Utility under 35 USC 111(a)

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Payment Type	Deposit Account
Payment was successfully received in RAM	\$2038
RAM confirmation Number	6259
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1		2010_12_06_15_07_17.pdf	462467 8961af60508fa20df75121e5e36408d8ba6403bc	yes	5
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal of New Application		1	1	
	Nonpublication request from applicant.		2	2	
	Application Data Sheet		3	5	
Warnings:					
Information:					
2	Oath or Declaration filed	8094_Dec.PDF	321656 c76844f03fcd496616024b7ae3ea21cf78748b7c	no	3
Warnings:					
Information:					
3		2010_12.pdf	547708 b8bdde24f03249ee8790b2794df6f89e5a33fa5	yes	3
	Multipart Description/PDF files in .zip description				
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	Assignee showing of ownership per 37 CFR 3.73(b).		1	2	
	Power of Attorney		3	3	
Warnings:					
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4		2010_12_06_15_09_06.pdf	1426217 b89fdbbc7ddc2a4822c990b2511974f8e11bc014	yes	43
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	20	

	Claims		21	29
	Abstract		30	30
	Drawings-only black and white line drawings		31	43
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	Multipart Description/PDF files in .zip description			
	Document Description	Start	End	
	Transmittal Letter	1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)	3	5	
	Foreign Reference	6	6	
	Foreign Reference	7	7	
Warnings:				
Information:				
6	NPL Documents	Boult1.pdf	1227931 0b5157b017f0a4bff3e16f9d34e106623e10b7af	no 15
Warnings:				
Information:				
7	NPL Documents	Boult2.pdf	835922 b7bb23c41b00fa6cc1372e76cd56ba76245b8793	no 12
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8	NPL Documents	Choudhury.pdf	1655153 135f3f1e4020f2a513b048e5b09a01f08274483	no 12
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Information:				
9	NPL Documents	Durand.pdf	1969834 d04ae39c66229f41b2f1f72dc65ca9c5611a4ffid	no 10
Warnings:				

Information:					
10	NPL Documents	Fattal.pdf	2262761	no	8
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Warnings:					
Information:					
11	NPL Documents	Gilboa.pdf	586514	no	9
			a26409a4b48e16f05cefffb0dba920f2137bd0d		
Warnings:					
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12	NPL Documents	Perona.pdf	2337411	no	30
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.